

COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Valley Regional Office

STATEMENT OF LEGAL AND FACTUAL BASIS

MillerCoors, L.L.C.

Rockingham County, Virginia
Permit No. VRO81012

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, MillerCoors, L.L.C. has applied for a Title V Operating Permit for its Rockingham County facility. The Department has reviewed the application and has prepared a Title V Operating Permit.

Engineer/Permit Contact: Kathleen T. Haddock Date: 9/13/10

Kathleen T. Haddock, P.E.
540-574-7863

Air Permit Manager: Janardan R. Pandey Date: 9/14/10

Janardan R. Pandey, P.E.

Deputy Regional Director: B. Keith Fowler Date: 9/15/10

B. Keith Fowler

FACILITY INFORMATION

Permittee

MillerCoors, L.L.C.
5135 South Eastside Highway
Elkton, Virginia 22827

Facility

MillerCoors, L.L.C. – Shenandoah Brewery
3.5 miles south of Elkton on U.S. 340
Rockingham County, Virginia

County-Plant Identification Number: 51- 165-0122

SOURCE DESCRIPTION

NAICS Code: 312120 – Malt Beverage Manufacturer

MillerCoors, L.L.C. – Shenandoah Brewery (MillerCoors) manufactures malt beverages. Operations at the facility include a brewery (grain handling, brewing, fermenting, aging, and conditioning processes), packaging (bottles, cans, and kegs and carton assembly and label application), and a wastewater treatment plant. In addition, there are auxiliary processes supporting the operations.

MillerCoors is a Title V major source of nitrous oxides (NO_x) and volatile organic compounds (VOC). This source is located in an attainment area for all pollutants, and is a PSD minor source. The facility is currently permitted under a minor new source review permit approved on November 16, 2009. The existing Title V operating permit was issued on June 6, 2005 and expired on June 5, 2010.

COMPLIANCE STATUS

A full compliance evaluation of this facility, including a site visit (May 9, 2009), has been conducted. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or federal applicable requirements at this time.

CHANGES TO TITLE V OPERATING PERMIT

The following changes were made to the Title V operating permit:

A significant modification to the Title V permit was approved on July 21, 2006 to include changes proposed by the facility to install various pieces of equipment to support a brewing process and to improve the waste water treatment facility. An administrative amendment to the Title V permit was approved on August 8, 2008 for a name change to the facility.

All referenced minor NSR permit conditions and dates were updated to reflect the November 16, 2009 minor NSR permit. The Title V Permit Boilerplate – March 2010 was used to develop the renewal permit. Condition numbers indicated below are from the Title V operating permit with an expiration date of June 5, 2010:

- I. Facility Information – Responsible Official updated
- II. Emission Units Table
 - removed references to Unit ID 6 (97 Million Btu/hr boiler) – never constructed
 - added Unit ID 40 (0.10 Million Btu/hr propane-fired emergency generator)
 - updated stack IDs, PCD IDs, size/rated capacities
 - updated applicable minor NSR permit date (11/16/2009)
 - removed “not yet constructed” from Unit IDs 10, 23, and 24
 - moved Unit ID 16 (Lime Handling) to Waste Water Treatment Plant
 - Unit IDs 30 and 31 listed separately, as requested by the facility (Table II of Title V renewal application)
- III. Fuel Burning Equipment
 - A. Limitations
 - removed references to Unit ID 6. This affected Conditions 1, 3, 6, 7, 11, and 12.
 - Condition 4, which restricted the operation of all three 97 Million Btu/hr boilers simultaneously (Unit IDs 4, 5, and 6), was removed. The re-calculation of emission limits was not required as the annual limits were based on the simultaneous operation of only two boilers for PSD avoidance. Short term emission limits are in lb/Million Btu and are not affected by the removal of Unit ID 6.
 - B. Monitoring
 - removed references to Unit ID 6. This affected Conditions 2, 3, 4 and 6.
 - Condition 5 requiring the installation of CEMS on Unit ID 6 prior to the initial performance test was removed.

C. Recordkeeping

- removed references to Unit ID 6. This affected Conditions 1, b, d, and g.

D. Testing

- removed references to Unit ID 6. This affected Condition 1.
- Conditions 2, 3, and 4 were removed as they referenced the initial performance testing required for Unit ID 6.
- Condition 5 (Testing) was updated to current boilerplate language.

E. Reporting – removed reference to Unit ID 6

F. Notifications – removed. Notification regarding Unit ID 5 was received January 31, 2007 and Unit ID 6 will not be constructed.

IV. Brewery Requirements

A. Limitations

- removed “beginning with the commencement of the operation of the brewhouse” language from Conditions 1, 8, and 9.
- removed Condition 7 - VOC limits prior to commencement of brewhouse operation.

B. Monitoring – no changes

C. Recordkeeping – no changes

D. Testing – updated to current boilerplate language

E. Reporting – no changes

F. Notifications – removed. Notification was received January 31, 2007

V. Packaging Requirements – Unit IDs 27-32

A. Limitations

- removed conditions stating “prior to the commencement of operation of the brewhouse”. This affected Conditions 1 and 8.
- removed “beginning with the commencement of the operation of the brewhouse” language from Conditions 2 and 9.

- B. Monitoring and Recordkeeping – no changes
- C. Testing – updated to current boilerplate language
- VI. Wastewater Treatment Requirements – Unit IDs 16 and 33
 - A. Limitations
 - updated Condition 7, allowable PM emissions from Unit ID 16 to those in the 11/16/2009 minor NSR permit.
 - B. Monitoring – no changes
 - C. Recordkeeping – no changes
 - D. Testing – updated to current boilerplate language
- VII. Facility Wide Conditions
 - D. Authorization for construction and operation of the brewhouse and the two 97 Million Btu/hr boilers (Unit IDs 5 and 6) removed.
- VIII. Insignificant Emission Units
 - removed: ID 35 Bottlewash
 - added: ID 22 - Can 3 Pasteurizer (9 VAC 5-80-720 B)
 - ID 23 - Bottle 4 Pasteurizer (9 VAC 5-80-720 B)
 - ID 24 - Can 1 In-line Densifier (9 VAC 5-80-720 B)
 - ID 25 - Can 2 In-line Densifier (9 VAC 5-80-720 B)
 - ID 26 - Can 3 In-line Densifier (9 VAC 5-80-720 B)
- IX. Permit Shield and Inapplicable Requirements – removed references to Unit ID 6
- X. General Conditions – no changes

Attachment A – Fabric Filter CAM Plan (Unit ID 10)

- updated Indicator 1-A, Opacity, to allow VEE decrease to once per month, if 12 consecutive weekly VEE indicate no visible emissions. Anytime monthly VEE indicates visible emissions, or at the request of DEQ, the monitoring frequency shall be increased to weekly for that stack. In addition, the QIP threshold has been modified to define an excursion for monthly inspections.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Fuel Burning Equipment							
1	S-1	Cleaver Brooks boiler Model # D-34, Unit # W-3371 Constructed November 1985	18 Million BTU/hr	--	--	--	11/16/2009 Permit
2	S-2	Cleaver Brooks boiler Model # D-34, Unit # W-3372 Constructed November 1985	18 Million BTU/hr	--	--	--	11/16/2009 Permit
3	S-3	Cleaver Brooks boiler Model # D-34, Unit # W-3373 Constructed November 1985	18 Million BTU/hr	--	--	--	11/16/2009 Permit
4	S-4	Nebraska boiler Model # NS-E-64 Constructed January 2002	97 Million Btu/hr	Low NO _x Burners	PC-5	NO _x	11/16/2009 Permit
5	S-5	Nebraska Boiler Model #NS-E-64 Constructed January 2006	97 Million Btu/hr	Low NO _x Burners Flue Gas Recirculation	PC-6	NO _x	11/16/2009 Permit
40	--	Propane-fired emergency generator	0.10 Million Btu/hr	--	--	--	--
Brewing							
10	S-10	Grain Handling System	133,000 tons malt/yr	Fabric Filters	PC-10-A PC-10-B PC-10-C	PM/PM-10	11/16/2009 Permit
20	S-20	Brewing Process	10 Million barrels/yr	--	--	--	11/16/2009 Permit
23	S-23	Fermenting Process	10 Million barrels/yr	--	--	--	11/16/2009 Permit
24	S-24	Maturation (Aging) Process	10 Million barrels/yr	--	--	--	11/16/2009 Permit
25	S-25-1 through S-25-5	Conditioning Process	10 Million barrels/yr	Closed vessels under CO ₂ gas pressure during storage and cleaning.	--	--	11/16/2009 Permit

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
26	S-26-1	Byproducts Handling System	Waste Beer: 1,740,000 gal/yr	--	--	--	11/16/2009 Permit
	S-26-2		Yeast: 10,250,859 gal/yr				
	S-26-3		Waste yeast: 12,122,021 gal/yr				
38	--	CO ₂ Recovery System	10 Millions barrels/yr	--	--	--	11/16/2009 Permit
Packaging							
27	S-P-1 through S-P-9	Packaging Fillers Process	10 Million barrels/yr	Beer Dispensing Technology and Beer Spillage Management	--	VOC	11/16/2009 Permit
28	Fugitive	Packaging Conveyor Lubrication	--	--	--	--	11/16/2009 Permit
29	Fugitive	Product Marking	--	--	--	--	11/16/2009 Permit
30	Fugitive	Carton Assembly	--	--	--	--	11/16/2009 Permit
31	Fugitive	Label Application	--	--	--	--	11/16/2009 Permit
32	S-32	Packaging Defill Process	1,182,600 lb- aluminum/yr 19,272,000 lb-glass/yr	Water Spraying System	PC-32	VOC	11/16/2009 Permit
Wastewater Treatment							
33	S-33-1 through S-33-11	Wastewater Treatment Plant	4,500,000 gal/day	VAREC Biogas Flare and/or Two Cleaver-Brooks Biogas Boilers	PC-33 (VAREC) Units 34 and 35 (Boilers)	VOC and H ₂ S	11/16/2009 Permit
16	S-16	Lime-handling System	14,100 tons/yr	Bin vent filter	PC-16	PM/PM-10	11/16/2009 Permit

*The Size/Rated capacity is provided for informational purposes only, and is not an applicable requirement.

EMISSIONS INVENTORY

A copy of the 2009 permit application emission inventory is attached in *Attachment B*. Emissions are summarized in the following tables.

2009 Actual Emissions

Emission Unit ID	Criteria Pollutant Emissions (tons/year)					
	VOC	CO	SO ₂	PM _{2.5} / PM ₁₀	PM	NO _x
Fuel Burning Equipment						
1, 2, and 3 ¹	0	0	0	0	0	0
4 and 5 ²	1.065	16.258	0.1161	1.471	1.471	4.200
Brewing Process						
10	--	--	--	0.32	0.73	--
20	1.63	--	--	0.65	0.65	--
23	0.095	--	--	--	--	--
24	0.91	--	--	--	--	--
25	0.68	--	--	--	--	--
26	0.02	--	--	--	--	--
38	6.45	--	--	--	--	--
Packaging						
27	105	--	--	--	--	--
28	0.00	--	--	--	--	--
29	1.20	--	--	--	--	--
30	0.172	--	--	--	--	--
31	0.528	--	--	--	--	--
32	6.98	--	--	--	--	--
Wastewater Treatment Plant						
33	2.9	4.75	1.37	0.27	0.94	3.87
16	--	--	--	0.00	--	--
TOTALS	128	21.0	1.49	2.71	3.79	8.07

1. Boilers 1, 2, and 3 were not fired during the 2009 Emissions Inventory year;
2. NO_x emissions were determined from the CEMS installed on the boilers.

Pollutant	Hazardous Air Pollutant Emission (tons/yr)
Formaldehyde ¹	0.015
Acetaldehyde	0.75
Ethyl Acetate	5.70

1. Formaldehyde emissions from natural gas burning.

EMISSION UNIT APPLICABLE REQUIREMENTS

Those requirements determined to be Best Available Control Technology (BACT) per 9 VAC 5-50-260 in the minor NSR permit are noted after each condition description. Note that for some emission limits, the limit is based on tons per month where recordkeeping is based on a four-week period and annual emissions are based on the sum of 13 consecutive four-week periods. For these emission limits, it is understood by the facility that the month refers to a four-week period.

Fuel Burning Equipment – Unit IDs 1, 2, 3, 4, and 5

The minor NSR permit issued on April 21, 2005 (superseded) allowed for the extension of the construction period for Boiler Unit IDs 5 and 6. Boiler Unit ID 5 was constructed in January 2006. However, Boiler Unit ID 6 was not constructed and the allowable time period for construction has expired. All references to Boiler Unit ID 6 have been removed from the Title V permit. If MillerCoors decides to construct this unit in the future, the submittal of a permit application will be required.

Limitations – The following requirements are from the minor NSR permit issued on November 16, 2009. The condition numbers reflect those in the minor NSR. A copy of the permit is attached as *Attachment C*.

Condition 2 – Nitrous oxide (NO_x) emissions from the 97 Million Btu/hr boiler (Unit ID 4) shall be controlled by low NO_x burners (BACT requirement)

Condition 3 – NO_x emissions from the 97 Million Btu/hr boiler (Unit ID 5) shall be controlled by low NO_x burners and flue gas recirculation. (BACT)

Condition 18 – Approved fuels for all boilers (Unit IDs 1-5) are natural gas and propane.

Condition 19 – Fuel throughput limit for the 18 Million Btu/hr boilers (Unit IDs 1-3). (BACT)

Condition 20 – Fuel throughput for the 97 Million Btu/hr boilers (Unit IDs 4 and 5). (BACT)

Condition 21 – removed from Title V permit since Unit ID 6 never constructed.

Condition 22 – Boiler emissions shall be controlled by proper operation and maintenance. Training shall be provided and written operating procedures and a maintenance schedule shall be available.

- Condition 23 – Short term criteria pollutant emission limits for the 18 Million Btu/hr boilers (Unit IDs 1-3). (BACT)
- Condition 24 – Annual criteria pollutant emission limits for the 18 Million Btu/hr boilers (Unit IDs 1-3). (BACT)
- Condition 25 – Short term criteria pollutant emission limits for the 97 Million Btu/hr boilers (Unit ID 4). (BACT)
- Condition 26 – Short term criteria pollutant emission limits for the 97 Million Btu/hr boilers (Unit ID 5). (BACT)
- Condition 27 – Annual criteria pollutant emission limits for the 97 Million Btu/hr boilers (Unit IDs 4 and 5). (BACT)
- Condition 28 – Visible emission limit of five-percent opacity for the 97 Million Btu/hr boilers, except for one six-minute period in any one hour in which visible emissions shall not exceed 20 percent opacity. (BACT)

A visible emission limitation for the three 18 Million Btu/hr boilers (Unit IDs 1-3) was not included in the November 16, 2009 permit, nor in the previous minor NSR permits superseded by this permit. The visible emission limitation included in the Title V permit is pursuant to 9 VAC 5-50-80. A condition was added to the Title V permit restricting Unit ID 40 to the use of propane only as fuel.

Monitoring

The monitoring and recordkeeping requirements in Conditions 14, 15, 46, 48, and 49 of the minor NSR permit dated November 16, 2009 have been modified to meet Part 70 requirements.

Conditions 14 and 15 – The fuel gas flow to all boilers (Unit IDs 1-5) shall be continuously measured and recorded by Equimeter Mark II Turbo-Meters. This requirement will satisfy the periodic monitoring requirements for the fuel throughput limits required in Conditions 19 and 20. (BACT)

Conditions 46, 48, and 49 – NO_x emissions shall be measured and recorded by continuous emission monitoring systems (CEMS) on the two 97 Million Btu/hr boilers (Unit IDs 4 and 5). This requirement will satisfy the periodic monitoring requirements for the NO_x emission limits in Conditions 25-27. The data collected shall be used to determine compliance with these NO_x emission limitations.

The hourly emission limits in Conditions 23, 24, and 26 are based on the capacity of the boilers. Therefore if the boilers are operated at or below capacity, the hourly emission limits will not be exceeded.

With the exception of NO_x emissions from Unit IDs 4 and 5, the following equation and emissions factors will be used to determine actual emissions from the operation of the five boilers. NO_x from these units is determined through a Continuous Emissions Monitoring System (CEMS).

$$E = F \times N$$

Where: E = emission rate (lb/time period)

F = pollutant specific emission factor, provided below

N = fuel consumed (million ft³/time period for natural gas and 1000 gal/time period for propane)

Emission Factors – Unit IDs 1, 2, and 3
18 Million Btu/hr heat input rating, each

Pollutant	Emission Factor (1)	
	Natural Gas (lb/million ft ³)	Propane (lb/1000 gallons)
PM	7.6	0.7
PM-10	7.6	0.7
PM-2.5	7.6	0.7
SO ₂	0.6	--
CO	84	7.5
NO _x	100	13
VOC	5.5	1.0
Formaldehyde	0.075	--

Emission Factors – Unit IDs 4 and 5
97 Million Btu/hr heat input rating, each

Pollutant	Emission Factor (1)	
	Natural Gas (lb/million ft ³)	Propane (lb/1000 gallons)
PM	7.6	0.7
PM-10	7.6	0.7
PM-2.5	7.6	0.7
SO ₂	0.6	--
CO	84	7.5
NO _x – Unit ID 4 (2), (4)	50	13
NO _x – Unit ID 5 (3), (4)	32	13
VOC	5.5	1.0
Formaldehyde	0.075	--

- (1) Emission Factors: Natural Gas from AP-42, Tables 1.4-1 and 1.4-2 (07/98);
Propane from AP-42, Table 1.5-1 (07/08)
- (2) Unit ID 4 uses low NO_x burners for control. The emission factor for natural gas burning reflects the use of these controls.
- (3) Unit ID 5 uses low NO_x burners and flue gas recirculation. The emission factor for natural gas burning reflects the use of these controls.
- (4) Although NO_x emission factors are provided for Boilers 4 and 5, these units are equipped with NO_x CEMS; actual NO_x emissions data is provided by the CEMS monitors.

The annual emission limits in Conditions 24 and 27 were determined from the fuel throughput limitations stated in Conditions 19 and 20. Although Unit ID 6 (97 Million Btu/hr boiler) was not constructed, the annual emission limits in Condition 27 are not affected. Condition 21 of the minor NSR restricted the simultaneous operation of all three boilers; the annual emission limits in the permit were based on operation of only two boilers operating simultaneously. If MillerCoors does not exceed the fuel throughput limitations, the annual emission limits will not be exceeded. (Note that the restriction to operate three 97 Million Btu/hr boilers was in place in order to avoid PSD. If all three boilers were allowed to operate simultaneously, the facility would have exceeded the PSD threshold of 250 Million Btu/hr for fuel-burning units.)

The opacity requirements in Condition 28 for the 97 Million Btu/hr boilers and those established for the 18 Million Btu/hr boilers pursuant to 9 VAC 5-50-80 will be met through the use of the required fuels and through proper operation and maintenance. The operating procedures and maintenance schedule requirements will ensure compliance with the opacity limitations and satisfy the periodic monitoring requirement for the boilers.

Recordkeeping

The permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include fuel throughputs to the boilers and the CEMS data collected to determine compliance with the NO_x emission limits.

Compliance Assurance Monitoring (CAM) Plan

CAM does not apply to the boilers; none of the boilers has potential pre-controlled emissions of any pollutant that exceed major source threshold levels for that pollutant.

Testing

The permit does not require source tests for the fuel-burning equipment. The DEQ and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

Condition 50 of the minor NSR permit issued November 16, 2009 requires quarterly reporting within 30 days of the end of the calendar quarter for the 97 Million Btu/hr boilers. The reporting must include: the source operating time (in hours); for each boiler operating day, the information required under 40 CFR 60.49b (g)(1), (g)(2), and (g)(3); the quality assurance information required under 40 CFR 60.49b (g)(10); the dates and times of all outages of the NO_x CEMS, with reasons for the outages and corrective action taken; and the calculated hourly NO_x emission rates (in lb/hr). This information is to be sent to both the DEQ and to the EPA.

Notifications

Since the issuance of the current Title V operating permit, a start-up notification has been received for Boiler Unit ID 5 (January 26, 2007). The notification requirements regarding Unit ID 5 have been removed from the Title V operating permit. In addition, since the allowable time period for construction Boiler Unit ID 6 has expired and the unit has not been constructed, the initial notification requirements for this emission unit have been removed from the Title V.

Federal Standards Applicability – Unit ID 40 (Propane-fired Generator)

Unit ID 40, the propane-fired generator is currently not subject to any of the requirements of 40 CFR 60, Subpart JJJJ (NSPS for Stationary Spark Internal Combustion Engines). Based on the manufacture date, the construction date, and the maximum engine power, there are no compliance requirements for the generator. However, pursuant to §60.4230 (5), if the unit is modified or reconstructed as defined under 40 CFR 60, Subpart A, the unit will become subject to the applicable requirements of Subpart JJJJ.

Applicability of 40 CFR 63, Subpart ZZZZ (NESHAP for Stationary Reciprocating Internal Combustion Engines) is limited to demonstrating compliance with the applicable requirements of 40 CFR 60, Subpart JJJJ, pursuant to §63.6590 (c).

Streamlined Requirements

The 97 Million Btu/hr boilers (Unit ID 4 and 5) are subject to 9 VAC 5-50-80, Standard for Visible Emissions. This regulation limits visible emissions from the boilers to 20 percent opacity except for one six-minute period where visible emissions may not exceed 30 percent opacity. The minor NSR permit limits the visible emissions from the boilers to five percent opacity (Condition 28). Compliance with the minor NSR requirement will ensure that the boilers are also in compliance with 9 VAC 5-50-80. Therefore, the opacity requirements of 9 VAC 5-50-80 have not been included in the Title V permit.

All five boilers (Unit IDs 1-5) are subject to the particulate matter (PM), sulfur dioxide (SO₂), and visible emissions (opacity) requirements of 9 VAC 5-40-880, *et. seq.*, Emissions Standards for Fuel Burning Equipment (Rule 4-8). The minor NSR permit limits for PM, SO₂, and opacity

are more stringent than the limits in Rule 4-8. Therefore, compliance with the minor NSR requirements will ensure that the boilers are in compliance with the requirements of Rule 4-8.

Condition 29 of the minor NSR permit, Requirements by Reference for 40 CFR 60, Subpart Dc, has not been included because all applicable requirement of the subpart have been incorporated into the Title V permit.

Brewing Process – Unit IDs 10, 20, 23, 24, 25, 26, and 38

Limitations – The following requirements are from the minor NSR permit issued on November 16, 2009. The condition numbers reflect those in the minor NSR. A copy of the permit is attached as *Attachment C*.

- Condition 4 – Particulate Matter emissions (PM/PM-10) from the Barley Malt Receiving System, including grain receiving by railcar (choke unloading) and headhouse and internal handling, and the Barley Malt Storage, Screening, and Milling System (Unit ID 10) shall be controlled by fabric filters. (BACT)
- Condition 6 – Volatile Organic Compound (VOC) emissions from the Conditioning Process (Unit ID 25) shall be controlled by maintaining closed vessels under CO₂ pressure during storage and cleaning activities.
- Condition 31 – Annual production limitation of beer.
- Condition 32 – Annual throughput limitation of barley malt.
- Condition 33 – Short term and annual PM and PM-10 emission limitations for the Barley Malt Receiving System and the Barley Malt Storage, Screening, and Milling System (Unit ID 10). (BACT)
- Condition 34 – Monthly and annual VOC emission limitations for the Brewing Process (Unit ID 20), Fermentation (Unit ID 23), Maturation (Unit ID 24), Conditioning (Unit ID 25), By-products Handling (Unit ID 26), and the CO₂ Recovery System (Unit ID 38). (BACT)
- Condition 35 – Monthly and annual PM and PM-10 emission limitations for the Brewing Process (Unit ID 20). (BACT)
- Condition 36 – Visible emission limit of five percent opacity from all fabric filters. (BACT)

No visible emission limit was included in the minor NSR permit issued November 16, 2009 for the operations emitting only VOC (Brewing, fermentation, maturation, conditioning and by-products handling). A visible emission limit of 20 percent opacity except for one six-minute period where visible emissions may not exceed 30 percent was established pursuant to 9 VAC 5-50-80.

Monitoring

The PM limits are based on the production of beer and barley malt throughput allowed in the permit. Likewise, the VOC limits established are based on the production and throughput limits allowed in the permit. If MillerCoors does not violate the beer production limit or throughput limits contained in the permit, the PM and VOC emission limits will not be violated.

Recordkeeping demonstrating the total amount of beer produced and barley malt throughput can be used to demonstrate compliance with the PM and VOC emission limits, satisfying the periodic monitoring requirement.

MillerCoors is required to maintain records using DEQ-approved emission factors to demonstrate compliance with the PM and VOC limits established for the grain-handling and brewing processes in the permit. Actual emissions from these processes shall be calculated using the procedures outlined below. Details discussing the determination of emission factors are provided in *Attachment B – 2009 Emissions Inventory*.

Particulate Matter (PM) Monitoring – Unit ID 10 Grain Handling System

$$E = T \times EF \times \frac{100 - C}{100}$$

Where: E = VOC emission rate (lb VOC/time period)

T = Throughput to process (units are dependent on process)

EF = Process specific VOC emission factors as provided in the table below

C = control efficiency, as applicable (%)

Process Step	Emission Factor (EF)		EF Source	Units
	PM	PM-10		
Grain Receiving – Railcar	0.032	0.0078	AP-42, Table 9.9.1-1 (5/98)	lb/ton grain
Headhouse and Internal Handling	0.061	0.034	AP-42, Table 9.9.1-1 (5/98)	lb/ton grain
Malt Storage	0.14	0.14	AP-42, Table 9.9.7-1 (1/95) for Starch Storage Bin	lb/ton grain

Process Step	Emission Factor (EF)		EF Source	Units
Malt Screening	0.643	0.161	AP-42, Section 9.9.1 (5/98), Background Document	lb/ton grain
Malt Milling	1.20, controlled	1.20, controlled	AP-42, Table 9.9.1-2 (5/98), for Animal Feed Mill, Hammermill	lb/ton grain

Volatile Organic Compounds (VOC) Monitoring

$$E = T \times EF \times \frac{100 - C}{100}$$

Where: E = VOC emission rate (lb VOC/time period)

T = Throughput to process (units are dependent on process)

EF = Process specific VOC emission factors as provided in the table below

C = control efficiency, as applicable (%)

Process (Unit ID)	Emission Factor (EF)	EF Source	Units
Brewing (20)	1.02	AP-42, Table 9.12.1-2 (10/96) ¹	lb/1000 bbl of beer
Fermenting (23)	1.05	Coors, Golden, CO stack test	lb/1000 bbl of beer
Maturation (24)	0.57	AP-42, Table 9.12.1-2 ²	lb/1000 bbl of beer
Conditioning – Fill-on-vent (25)	0.174	Facility study conducted on 8/20/96	lb/1000 lb of CO ₂
Conditioning – Evacuation (25)	1.05	Coors, Golden, CO stack test, 7/9/97	lb/1000 bbl evacuated
By-products Handling (26)	N/A	Emissions determined from EPA TANKS 4 program.	lb/1000 bbl of waste beer
CO ₂ Recovery System (38) ³	Acetaldehyde – 0.38 Total VOC – 3.27	Determined from testing data supplied by the manufacturer for the scrubber that is part of the system.	lb/hr ⁴

1. Emission factor is the total of the emissions factors for Mash-in, Lauter Tun, Combi Kettle, and Trub Tanks as found in AP-42. Detailed discussion is provided in the Emissions Inventory (*Attachment B*).
2. Aging Tank emission factor.
3. Emissions from the CO₂ Recovery System occur only during regeneration. VOC emissions are for acetaldehyde (also listed as a HAP) and ethyl acetate (VOC only). Emissions of acetaldehyde are below the modeling exemption thresholds.
4. Emissions from the CO₂ Recovery System are calculated as follows:
(EF) x 4 regeneration hours/8 operating hours = emissions (lb/hr)

Compliance Assurance Monitoring (CAM) Plan

The following processes identified under Unit ID 10, Grain-handling System, are controlled by fabric filters and have the pre-control emissions of PM/PM-10 exceeding major source thresholds. These processes are subject to CAM:

- Barley Malt Receiving System, including grain receiving by railcar (choke unloading) and headhouse and internal handling
- Barley Malt Storage, Screening, and Milling System

None of the remaining brewing processes (Unit IDs 20, 23-26, and 38) use add-on control devices for emissions controls. Therefore, CAM is not applicable to these processes.

The CAM Plan (*Attachment A*) for Unit ID 10 fabric filters includes the following:

Indicator 1 – Visible emissions were selected as a performance indicator because they are indicative of good operation and maintenance of the fabric filters. When the fabric filters are operating properly, there will not be any visible emissions from the exhaust. Any increase in visible emissions indicates reduced performance of a particulate matter control device; therefore, the presence of visible emissions is used as a performance indicator.

Indicator 2 - An excursion is defined as the presence of visible emissions, unless the facility chooses to conduct a Method 9 VEE, where an excursion is defined as an average opacity of five percent during any one six-minute period in any hour. Regardless of which option the facility chooses, a Quality Improvement Plan (QIP) shall be developed if two excursions per each control device occur in a two-week period, during weekly monitoring, or if one excursion occurs during monthly monitoring.

Indicator 3 – Monthly external filter inspections and annual internal filter inspections are required by qualified personnel. Inspections will alert the facility of bag deterioration and necessary corrective maintenance to obtain the proper control efficiencies in order to meet emission limitations.

Recordkeeping

The permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include throughputs of all raw materials, total amount of beer brewed, total amount of waste beer, total amount of CO₂ consumed, emissions data, and necessary records required by the CAM plan.

Testing

The permit does not require source tests for the brewing process. The DEQ and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

The facility is required to submit CAM reports as part of the Title V semi-annual monitoring reports required in the General Conditions. The reports shall include, at a minimum: summary information of excursions, monitor downtime, and action taken to implement a QIP, if required during the reporting period.

Packaging Requirements – Unit IDs 27, 28, 29, 30, 31, and 32

Limitations – The following requirements are from the minor NSR permit issued on November 16, 2009. The condition numbers reflect those in the minor NSR. A copy of the permit is attached as *Attachment C*.

Condition 7 – Volatile organic compound (VOC) emissions from the Packaging Fillers Process (Unit ID 27) shall be controlled by beer dispensing technology and beer spillage management practices. (BACT)

Condition 8 – VOC emissions from the Packaging Defill Process (Unit ID 32) shall be controlled by the use of a water spraying system. (BACT)

Condition 9 – VOC emissions from Packaging Conveyor Lubrication (Unit ID 28) shall be controlled by the use of current low VOC-containing lubricants. The facility is required to evaluate new, low VOC-containing lubricants as they become available. (BACT)

Condition 10 – VOC emissions from Product Marking (Unit ID 29) shall be controlled by the use of current low VOC-containing product inks and make-up cleaners. The facility is required to evaluate new, low VOC-containing inks and make-up cleaners as they become available. (BACT)

Condition 11 – VOC emissions from Carton Assembly (Unit ID 30) and Label Application (Unit ID 31) shall be controlled by the use of low solvent based glues. (BACT)

Condition 31 – Annual production limitation of beer.

Condition 34 – Monthly and annual VOC emission limitations for the Packaging Fillers Process (Unit ID 27), Packaging Conveyor Lubrication (Unit ID 28), Product Marking (Unit ID 29), Carton Assembly (Unit ID 30), Label Application (Unit ID 31), and the Packaging Defill Process (Unit ID 32). (BACT)

Monitoring and Recordkeeping

There are VOC emission limits established for all aspects of the packaging process (packaging, conveyor line lubrication, product marking, carton assembly, bottle label application, and defilling) which are based on the beer production/processing limits contained within the permit. The beer production/processing rate directly determines VOC emission rates. If MillerCoors does not exceed the beer production/processing limits contained in the permit, the VOC emission limits will not be violated. Recordkeeping demonstrating the total amount of beer produced/processed each year can be used to demonstrate compliance with the VOC emission limits, satisfying the periodic monitoring requirement.

MillerCoors is required to maintain records using DEQ-approved emission factors to demonstrate compliance with the VOC limits in the permit. Details discussing the determination of emission factors are provided in *Attachment B – 2009 Emissions Inventory*. Actual VOC emissions from the packaging operations shall be calculated using the following equation:

$$E = T \times EF \times \frac{100 - C}{100}$$

Where: E = VOC emission rate (lb VOC/time period)

T = Throughput to process (units are dependent on process)

EF = Process specific VOC emission factors as provided in the table below

C = control efficiency, as applicable (%)

Process (Unit ID)	Emission Factor (EF)	EF Source	Units
Packaging – Bottles (27)	36	Coors, Golden, CO stack tests 6/25/92, 10/14/92, and 12/2/92.	lb/1000 bbl of beer
Packaging – Cans (27)	37.5	Coors, Golden, CO stack tests 6/23/92, 10/14/92, 12/2/92, 12/4/92, and 12/16/92	lb/1000 bbl of beer
Packaging – Kegs (27)	0.675	Coors, Golden, CO stack test 6/25/92	lb/1000 bbl of beer
Conveyor Line Lubrication (28)	2.32 (or as specified on most recent MSDS)	MSDS	lb/gal
Product Marking (29)	9.28 (or as specified on most recent MSDS)	MSDS	lb/gal
Carton Assembly (30)	0.10 (or as specified on most recent MSDS)	MSDS	lb/gal
Bottle Label Application (31)	0.19 (or as specified on most recent MSDS)	MDS	lb/gal
Defilling – Bottles (32)	0.001	Coors, Golden, CO stack test 4/32/93	lb/lb glass crushed
Defilling – Cans (32)	0.035	Coors, Golden, CO stack test 10/31/93	lb/lb aluminum shredded

Compliance Assurance Monitoring (CAM) Plan

CAM does not apply to any of the units in the Packaging Process as none of the emission units uses an add-on control device.

Testing

The permit does not require source tests for the packaging process. The DEQ and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

No specific reporting has been included in the permit for the Packaging Process.

Streamlined Requirements

There are no streamlined requirements for the packaging equipment.

Wastewater Treatment Requirements – Unit IDs 16 and 33

Limitations – The following requirements are from the minor NSR permit issued on November 16, 2009. The condition numbers reflect those in the minor NSR. A copy of the permit is attached as *Attachment C*.

- Condition 5 – Particulate matter emissions (PM and PM-10) from the operation of the lime storage and handling system (Unit ID 16) shall be controlled by a bin vent filter. (BACT)
- Condition 12 – The collection system for the wastewater treatment facility and influent structures must be covered to prevent the escape of volatile organic compound (VOC) emissions. (BACT)
- Condition 13 – VOC emissions from the wastewater treatment facility shall be controlled by an advanced wastewater treatment system. (BACT)
- Condition 38 – Approved fuel for the wastewater treatment biogas flare and boilers is primary digester gas. The approved fuel for the flare pilot flame is propane.
- Condition 39 – Annual throughput limit for lime. (BACT)
- Condition 40 – Annual PM and PM-10 emission limits from the Lime Storage and Handling System (Unit ID 16). (BACT)
- Condition 41 – Monthly and annual VOC emission limits from the Wastewater Collection/Treatment and Sludge Handling Systems. (BACT)
- Condition 42 – Visible emission limit of five percent opacity from the lime storage silo bin vent filter. (BACT)

Monitoring and Recordkeeping

Condition 16 of the minor NSR permit has been modified to meet Part 70 requirements.

The permit requires MillerCoors to operate a biogas flare to control VOC emissions from the wastewater treatment facility. The flare must be equipped with a monitoring device to ensure continuous operation, as well as an automatic shutoff device and re-ignition controls. This device will satisfy the periodic monitoring requirement for operation of the biogas flare. There are VOC emission limits established for the wastewater collection/treatment and sludge

handling systems, which are based on the beer production/processing limits contained within the permit, and the operation of the biogas flare. The beer waste rate (which at worst case is all of the beer that can be produced/processed) directly determines VOC emission rates. Therefore, as long as the biogas flare is operating and the beer production/processing limit is not violated, there is very little chance that the VOC emission limits will be violated. Recordkeeping demonstrating the total amount of beer wasted each year can be used to demonstrate compliance with the VOC emission limits, satisfying the periodic monitoring requirement.

The permit requires the facility to record daily, four-week period, and annual throughput of digester gas. The permit does not require the use of flow meters to monitor this throughput as originally the throughput was determined using a mass balance. MillerCoors currently does use flow meters on both biogas boilers and the flare, although not required by the permit.

MillerCoors is required to maintain records using DEQ-approved emission factors to demonstrate compliance with the VOC limits in the permit. Details discussing the determination of emission factors are provided in *Attachment B – 2009 Emissions Inventory*. Actual emissions from the wastewater treatment system operations shall be calculated using the following equation:

$$E = F \times N$$

Where: E = emission rate (lb/time period)
F = pollutant specific emission factor, provided below
N = throughput/time period

**Emission Factors – Unit ID 33
Biogas Boilers #1 and #2**

Pollutant	Emission Factor (lb/MMCF)	EF Source
PM	7.6	AP-42, Table 1.4-2 (7/98)
PM-10	7.6	
PM-2.5	7.6	
SO ₂	32.0	Assume equal to PM-10
CO	84	Assume 200 ppmv H ₂ S in gas and 98% conversion to SO ₂
NO _x	100	
VOC	5.5	
NH ₃	3.2	Development and Selection of Ammonia Emission Factors, August 1994

Emission Factors – Unit ID 33
Collection System
Primary Treatment
Biogas Flare
Secondary Treatment System

Process	Pollutant	Emission Factor	EF Units	EF Source
Collection System	VOC	3.75	lb/MG	Facility-provided emission factor based on process knowledge.
Primary Treatment	H ₂ S	0.029	lb/Million BTU	
Biogas Flare	PM	0.14	lb/Million Btu	AP-42, Section 13.5 (5 th ed.)
	CO	0.37	lb/Million Btu	
	NO _x	0.068	lb/Million Btu	
	SO ₂	0.05	lb/Million Btu	Facility-provided emission factor based on process knowledge.
Secondary Treatment	VOC	6.42	lb/MG	Facility-provided emission factor based on process knowledge.

Compliance Assurance Monitoring (CAM) Plan

CAM does not apply to any of the Wastewater Treatment units, as none of the emission units has potential pre-control emissions for any pollutant that exceed major source thresholds.

Testing

The permit does not require source tests for the wastewater treatment system. The DEQ and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

No specific reporting has been included in the permit for the Wastewater Treatment facility.

Streamlined Requirements

There are no streamlined requirements for the Wastewater Treatment units.

Facility Wide Requirements

The following requirements are from the minor new source review permit issued on November 16, 2009. The condition numbers reflect those in the minor NSR. A copy of the permit is attached as *Attachment C*.

Condition 37 – PSD applicability

Condition 57 – Maintenance and Operating Procedures shall be implemented to minimize the duration and frequency of excess emissions, with respect to air pollution control equipment, monitoring devices, and process equipment, including: development of a maintenance schedule, an inventory of spare parts shall be maintained, written equipment operating procedures will be available, and employees shall be trained in the proper operation of the equipment.

GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

Comments on General Conditions

B. Permit Expiration

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.2-604 and §10.1-1185 of the *Code of Virginia*, and the “Department of Environmental Quality Agency Policy Statement No. 2-2003”.

This general condition cites the sections that follow:

9 VAC 5-80-80. Application

9 VAC 5-80-140. Permit Shield

9 VAC 5-80-150. Action on Permit Applications

F. Failure/Malfunction Reporting

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the

general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

In order for emission units to be relieved from the requirement to make a written report in 14 days the emission units must have continuous monitors meeting the requirements of 9 VAC 5-50-410 or 9 VAC 5-40-41.

This general condition cites the sections that follow:

- 9 VAC 5-40-41. Emissions Monitoring Procedures for Existing Sources
- 9 VAC 5-40-50. Notification, Records and Reporting
- 9 VAC 5-50-50. Notification, Records and Reporting

J. Permit Modification

This general condition cites the sections that follow:

- 9 VAC 5-80-50. Applicability, Federal Operating Permit For Stationary Sources
- 9 VAC 5-80-190. Changes to Permits.
- 9 VAC 5-80-260. Enforcement.
- 9 VAC 5-80-1100. Applicability, Permits For New and Modified Stationary Sources
- 9 VAC 5-80-1605. Applicability, Permits For Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas
- 9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas

U. Malfunction as an Affirmative Defense

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition U and General Condition F. For further explanation see the comments on general condition F.

This general condition cites the sections that follow:

- 9 VAC 5-20-180. Facility and Control Equipment Maintenance or Malfunction
- 9 VAC 5-80-110. Permit Content

Y. Asbestos Requirements

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

This general condition contains a citation from the Code of Federal Regulations that follow:
40 CFR 61.145, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to demolition and renovation.

40 CFR 61.148, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to insulating materials.

40 CFR 61.150, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to waste disposal.

This general condition cites the regulatory sections that follow:

9 VAC 5-60-70. Designated Emissions Standards

9 VAC 5-80-110. Permit Content

STATE ONLY APPLICABLE REQUIREMENTS

MillerCoors did not identify any state-only enforceable requirements in the Title V renewal application, and all requirements in the state operating permit are federally enforceable. Therefore, no state-only applicable requirements have been included in the Title V permit.

FUTURE APPLICABLE REQUIREMENTS

MillerCoors did not identify any future applicable requirements in the renewal application. However, upon promulgation, currently set for December 16, 2010, MillerCoors will be subject to the area source requirements of the Boiler MACT.

INAPPLICABLE REQUIREMENTS

40 CFR 60 Subpart Dc is listed as an inapplicable requirement in the Title V permit for Units 1, 2 and 3. The regulation applies to steam generating units for which construction commenced after June 9, 1989, and that have a maximum design heat input capacity of 100 mmBtu/hr or less, but greater than 10 mmBTU/hr. Construction on the three 18 mmBTU/hr boilers (Units 1, 2 and 3) began in November of 1985 and there has been no reconstruction or modification (as defined under Subpart A) that would trigger applicability of Subpart Dc. Therefore, 40 CFR 60 Subpart Dc does not apply to the three 18 mmBTU/hr boilers (Units, 1, 2 and 3).

40 CFR 60 Subpart DD is listed as an inapplicable requirement in the Title V permit. The regulation applies to each affected facility at any grain terminal elevator or any grain storage elevator that commenced construction, modification, or reconstruction after August 3, 1978. Grain terminal elevators located at breweries are exempt from 40 CFR 60 Subpart DD.

40 CFR 60 Subpart VV § 60.482 (Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry) is listed as an inapplicable requirement in the Title V permit. The regulation applies to each affected facility in the synthetic organic chemicals manufacturing industry. Facilities that produce beverage alcohol are exempt from § 60.482.

40 CFR 60 Subpart Kb (Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Storage Vessels) is listed as an inapplicable requirement in the Title V permit. This regulation applies to each storage vessels with a capacity greater than 75 m³ that is used to store volatile organic liquids for which construction, reconstruction, or modification is commenced after July 23, 1984. This regulation does not apply to vessels used to store beverage alcohol.

40 CFR 60 Subpart NNN (Standards of Performance for VOC Emissions from Synthetic Organic Chemical Manufacturing Industry Distillation Operations) is listed as an inapplicable requirement in the Title V permit. This regulation applies to each affected facility that is part of a process unit that produces any of the chemicals listed in § 60.667 as a product, co-product, by-product, or intermediate. This regulation does not apply to any distillation unit operating as part of a process unit which produces beverage alcohols.

40 CFR 60 Subpart WW (Standards of Performance for the Beverage Can Surface Coating Industry) is listed as an inapplicable requirement in the Title V permit. This regulation applies to the following affected facilities in beverage can surface coating lines: each exterior base coat operation, each overvarnish coating operation, and each inside spray coating operation. This regulation does not apply to MillerCoors, L.L.C.

The startup, shut down, and malfunction opacity exclusion listed in 9 VAC 5-40-20 A.4 cannot be included in any Title V permit. This portion of the regulation is not part of the federally approved state implementation plan. The opacity standard applies to existing sources at all times including startup, shutdown, and malfunction. Opacity exceedances during malfunction can be affirmatively defended provided all requirements of the affirmative defense section of this permit are met. Opacity exceedances during startup and shut down will be reviewed with enforcement discretion using the requirements of 9 VAC 5-40-20 E, which state that "At all times, including periods of startup, shutdown, soot blowing and malfunction, owners shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with air pollution control practices for minimizing emissions."

COMPLIANCE PLAN

MillerCoors is currently in compliance with all applicable requirements. No compliance plan was included in the application or in the permit.

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
19	Diesel Fuel Storage	9 VAC 5-80-720 A	--	--
22	Can 3 Pasteurizer	9 VAC 5-80-720 B	VOC	--
23	Bottle 4 Pasteurizers	9 VAC 5-80-720 B	VOC	--
24	Can 1 in-line densifiers	9 VAC 5-80-720 B	VOC	--
25	Can 2 in-line densifiers	9 VAC 5-80-720 B	VOC	--
26	Can 3 in-line densifiers	9 VAC 5-80-720 B	VOC	--
31	Rail and Truck Loading	9 VAC 5-80-720 A	--	--
36	Wet Spent Grain Storage and Loadout	9 VAC 5-80-720 B	VOC	--
37	Adjuncts Handling	9 VAC 5-80-720 B	PM, PM-10	--
51	Yeast Propagation	9 VAC 5-80-720 B	VOC, SO ₂	--
52	Cooling Towers	9 VAC 5-80-720 A	--	--
53	Deozonation Towers	9 VAC 5-80-720 B	VOC (ozone)	--
54	Packaging Traymaker	9 VAC 5-80-720 B	PM, PM-10, VOC	--
55	CIP (Clean-in-Place) System	9 VAC 5-80-720 B	VOC	--
56	Hops Staging Room	9 VAC 5-80-720 B	VOC	--
57	Inline Defill Units – Bottle Line 3	9 VAC 5-80-720 B	VOC	--
58	Warehouse Keg Defill	9 VAC 5-80-720 B	VOC	--
59	Keg Line Defill	9 VAC 5-80-720 B	VOC	--
60	Five-liter Keg Can Filling	9 VAC 5-80-720 B	VOC	--
61	Bottle Warmer	9 VAC 5-80-720 B	VOC	--
62	Flash Pasteurization	9 VAC 5-80-720 B	VOC	--
63	Central Vacuum System	9 VAC 5-80-720 B	PM, PM-10, VOC	--
64	Green Beer Centrifuges	9 VAC 5-80-720 B	VOC	--
65	Emergency Malt Loadout	9 VAC 5-80-720 B	PM, PM-10	--
--	General Ventilation	9 VAC 5-80-720 A	--	--
--	Portable Heaters	9 VAC 5-80-720 A	--	--
--	Space Heaters	9 VAC 5-80-720 A	--	--
--	Office Activities	9 VAC 5-80-720 A	--	--
--	Janitorial Cleaning/Maintenance	9 VAC 5-80-720 A	--	--

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Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity 9 VAC 5-80-720 C)
--	Architectural Repair Activities	9 VAC 5-80-720 A	--	--
--	Grounds Maintenance	9 VAC 5-80-720 A	--	--
--	Locker Room Ventilation	9 VAC 5-80-720 A	--	--
--	Copier Activities	9 VAC 5-80-720 A	--	--
--	Blueprint Duplication	9 VAC 5-80-720 A	--	--
--	Cafeteria Activities	9 VAC 5-80-720 A	--	--
--	Safety Devices	9 VAC 5-80-720 A	--	--
--	Air Contaminate Test Equipment	9 VAC 5-80-720 A	--	--
--	Welding, Soldering Equipment	9 VAC 5-80-720 A	--	--
--	Forklift, Truck Engines	9 VAC 5-80-720 A	--	--
--	Firefighting Equipment and Training	9 VAC 5-80-720 A	--	--
--	Quality Control Lab Activities	9 VAC 5-80-720 A	--	--
--	Air Compressors	9 VAC 5-80-720 A	--	--
--	Dumpster	9 VAC 5-80-720 A	--	--
--	Air Dryers for Instrument Air	9 VAC 5-80-720 A	--	--
--	Laboratory Activities	9 VAC 5-80-720 A	--	--
--	Sampling Activities	9 VAC 5-80-720 A	--	--
--	Solvent Storage	9 VAC 5-80-720 A	--	--
--	Cooling Ponds	9 VAC 5-80-720 A	--	--
--	Maintenance Activities	9 VAC 5-80-720 A	--	--
--	Spill Collection Tanks	9 VAC 5-80-720 A	--	--
--	Steam Vents	9 VAC 5-80-720 A	--	--
--	Boiler Treatment Operations	9 VAC 5-80-720 A	--	--
--	Nonhazardous Boiler Cleaning Activities	9 VAC 5-80-720 A	--	--
--	Portable Containers	9 VAC 5-80-720 A	--	--
--	Vents or Stacks for Sewer Lines	9 VAC 5-80-720 A	--	--
--	Purging of Natural Gas Lines	9 VAC 5-80-720 A	--	--
--	Sealed Batteries	9 VAC 5-80-720 A	--	--

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity 9 VAC 5-80-720 C)
--	Parking Lot Resurfacing	9 VAC 5-80-720 A	--	--
--	Decarbonators Vents	9 VAC 5-80-720 A	--	--
--	Relief Valves (excluding air pollution bypass valves)	9 VAC 5-80-720 A	--	--

CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

PUBLIC PARTICIPATION

The proposed permit was placed on public notice in the Daily News Record on July 20, 2010. The public comment period ran from July 21, 2010 through August 19, 2010. In addition, notification of the public notice comment period was sent to the adjoining state (West Virginia Department of Environmental Protection – Division of Air Quality), to those listed on the public notice notification list, and to the Assistant Chief of the Mattaponi Indian Tribe located in West Point, Virginia.

The EPA 45-day review period ran from July 21, 2010 through September 3, 2010.

There were no public or EPA comments received on the draft permit.

ATTACHMENTS

- A – Unit ID 10 Fabric Filters CAM Plan
- B – 2009 Emissions Inventory
- C – November 16, 2009 minor NSR Permit

ATTACHMENT A

UNIT ID 10 FABRIC FILTERS CAM PLAN

**Fabric Filter Compliance Assurance Monitoring Plan
(Unit ID 10)**

Indicator	Indicator 1-A	Indicator 1-B	Indicator 2
	Opacity	Visible Emission Evaluation (optional - to determine if excursion occurs)	Periodic Structural Inspections
Measurement approach	At a minimum of once per week, visible emission observations shall be conducted at each control device emission point. However, if visible emissions inspections conducted during 12 consecutive weeks show no visible emissions, the permittee may reduce the monitoring frequency to once per month for that stack. Anytime the monthly visible emissions inspections show visible emissions, or when requested by DEQ, the monitoring frequency shall be increased to once per week for that stack.	Method 9 VEE in accordance with 40 CFR 60, Appendix A conducted optionally to determine if an excursion occurs. Results recorded upon completion of each Method 9. If visible emissions are observed by Indicator 1-A and a Method 9 VEE is not conducted, then an excursion has occurred.	Monthly external bag filter inspections by a qualified employee. Results recorded monthly. Annual internal bag filter inspections by a qualified employee. Results recorded upon completion of each inspection.
Indicator range	An excursion is defined as the presence of any visible emission from the control device unless otherwise determined by a Method 9 VEE.	An excursion is defined as an average opacity greater than 5% during one six-minute period in any one hour.	An excursion is defined as failure to perform the monthly or annual inspection of bag filters. Excursions trigger an inspection, corrective action and a reporting requirement.
Quality Improvement Plan (QIP) Threshold	Two excursions in a two-week period per each control device. If monitoring is reduced to once per month for any stack, a QIP will be implemented if one excursion is detected and monitoring will revert to weekly.	Two excursions in a two-week period per each control device. If monitoring is reduced to once per month for any stack, a QIP will be implemented if one excursion is detected and monitoring will revert to weekly.	N/A
Performance criteria: Data Representativeness	Observation of visible emissions indicates possible damage to bag filter.	Observation of visible emissions greater than 5% indicates replacement or maintenance of bag filters is necessary.	Bags in the fabric filters shall be inspected visually for deterioration and remaining bag life monitored.
Verification of operational status	Records that indicate time, facility operational status and results of each observation.	Pressure drop across each filter.	Pressure drop across each filter.
QA/QC practices and criteria	Qualified personnel to perform observations.	Certified Method 9 observer shall perform VEE.	Qualified personnel perform the inspection and maintenance.

Indicator	Indicator 1-A	Indicator 1-B	Indicator 2
Monitoring frequency and data collection procedure	A minimum of once per week observation, unless no emissions observed for 12 consecutive weeks. Monitoring frequency then becomes once per month until visible emissions are observed.	Upon the observation of visible emissions from any fabric filter.	Monthly and annually inspections.

ATTACHMENT B
2009 EMISSIONS INVENTORY

2009 EMISSION STATEMENT

DEQ-VALLEY

FACILITY NAME:	PLANT ID & REGISTRATION #	CONTACT PERSON
MillerCoors LLC Shenandoah Brewery	81012 TO: FILE:	Jeff Rinker
LOCATION		JURISDICTION
3.5 miles S. of Elkton on US340 in Rockingham County		Valley Regional Office
MAILING ADDRESS	MAILING CITY AND STATE	ZIP CODE
5135 South Eastside Highway	Elkton, VA	22827
PARENT COMPANY	TELEPHONE NUMBER	PRIMARY SIC CODE
Coors Brewing Company	(540) 289-8112	2082

FACILITY TOTALS (Sum annual emissions for all emission points/segments from attached pages)

	ANNUAL (tons/yr)	OZONE SEASON (lbs/day)
Total VOC emissions for 2009	127.77	700.09
Total NOx emissions for 2009	8.07	44.19
Total SO2 emissions for 2009	1.49	NA
Total PM10 emissions for 2009	2.71	NA
Total Pb emissions for 2009	0.00	NA
Total TRS emissions for 2009	0.02	NA
Total TNMOC emissions for 2009 (landfills only)	NA	NA
Total non-VOC/non-PM HAP emissions for 2009	0.00	NA
Total CO emissions for 2009	21.01	NA
Total PM2.5 emissions for 2009	1.74	NA
Total NH3 emissions for 2009	0.73	NA



VIRGINIA DEPARTMENT OF
ENVIRONMENTAL QUALITY

EMISSION STATEMENT CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering and evaluating the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

(see reverse side for instructions)

SIGNATURE:

DATE:

April 14 2010

PRINTED NAME:

A.T. PICKRELL

TITLE:

OPERATIONS MANAGER: BREWING (ACTING FOR PLANT MANAGER)

COMPANY:

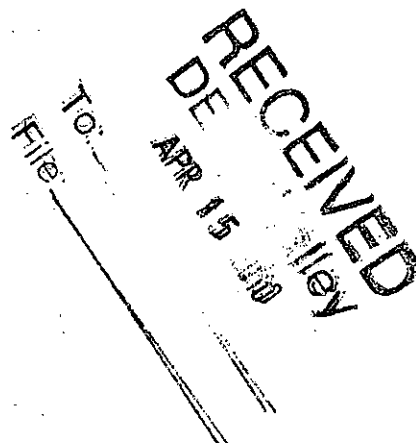
Miller Coors LLC - Shenandoah Brewery

REGISTRATION NUMBER:

81012

TELEPHONE NUMBER:

540-289-8541



Actual Emissions for Calendar Year 2009
Boilers 1, 2, and 3 (Emission Units 1, 2, and 3)

Pollutant	Fuel	Throughput	EF*	Actual Annual Emissions
PM10	Nat. Gas	0.00 MMcf	7.6 lbs/MMcf	0.000 tons
PM10	Propane	0 1000gal	0.6 lbs/1000gal	0.000 tons
				0.000 total tons per year
PM2.5	Nat. Gas	0.00 MMcf	7.6 lbs/MMcf	0.000 tons
PM2.5	Propane	0 1000gal	0.6 lbs/1000gal	0.000 tons
				0.000 total tons per year
SO2	Nat. Gas**	0.00 MMcf	0.6 lbs/MMcf	0.0000 tons
SO2	Propane***	0 1000gal	0.02 lbs/1000gal	0.0000 tons
				0.0000 total tons per year
NOx	Nat. Gas	0.00 MMcf	100 lbs/MMcf	0.000 tons
NOx	Propane	0 1000gal	19 lbs/1000gal	0.000 tons
				0.000 total tons per year
CO	Nat. Gas	0.00 MMcf	84 lbs/MMcf	0.000 tons
CO	Propane	0 1000gal	3.2 lbs/1000gal	0.000 tons
				0.000 total tons per year
VOCs	Nat. Gas	0.00 MMcf	5.5 lbs/MMcf	0.000 tons
VOCs	Propane	0 1000gal	0.5 lbs/1000gal	0.000 tons
				0.000 total tons per year
Formaldehyde	Nat. Gas	0.00 MMcf	0.075 lbs/MMcf	0.0000 tons
Formaldehyde	Propane	0 1000gal	n/a	n/a
				0.0000 total tons per year
Ammonia****	Nat. Gas	0.00 MMcf	3.2 lbs/MMcf	0.000 tons
Ammonia	Propane	0 1000gal	n/a	n/a
				0.000 total tons per year

note: * the source of all Emission Factors is the EPA's AP-42, 5th ed. (7/1998).

** the emission factor of 0.6 assumes an average sulfur concentration in Nat. Gas of 2000 grains/MMcf.

*** the emission factor of 0.02 assumes that propane contains the same concentration of sulfur as natural gas quoted in AP-42 (0.2 grains/100cf).

**** The ammonia emission factor from Development and Selection of Ammonia Emission Factors - Final Report. R. Battye, W. Battye, C. Overcash, and S. Fudge; EC/R Incorporated; Durham, NC. Report prepared for USEPA Office of Research and Development; August, 1994

(1) Muriatic Acid (with 29% w HCl) is used in the Utilities Center for regeneration of deionizing system. Air inventories reported for this system, thus 4/14/2010
In addition, due to the solubility of HCl in water it is believed that all HCl is spent in the system and no emissions of HCl occur.

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Actual Emissions for Calendar Year 2009
Boilers 4, 5, and 6 (Emission Units 4, 5, and 6)

Pollutant	Fuel	Throughput	EF**	Actual Annual Emissions
PM10	Nat.Gas	387.10 MMcf	7.6 lbs/MMcf	1.471 tons
PM10	Propane	0.00 1000gal	0.6 lbs/1000gal	0.000 tons
				1.471 total tons per year
PM2.5	Nat.Gas	387.10 MMcf	7.6 lbs/MMcf	1.471 tons
PM2.5	Propane	0.00 1000gal	0.6 lbs/1000gal	0.000 tons
				1.471 total tons per year
SO2	Nat.Gas***	387.10 MMcf	0.6 lbs/MMcf	0.1161 tons
SO2	Propane****	0.00 1000gal	0.02 lbs/1000gal	0.0000 tons
				0.1161 total tons per year
NOx	Nat.Gas	387.10 MMcf	CEM Data	4.200 total tons per year
NOx	Propane	0.00 1000gal		
				4.200 total tons per year
CO	Nat.Gas	387.10 MMcf	84 lbs/MMcf	16.258 tons
CO	Propane	0.00 1000gal	3.2 lbs/1000gal	0.000 tons
				16.258 total tons per year
VOCs	Nat.Gas	387.10 MMcf	5.5 lbs/MMcf	1.065 tons
VOCs	Propane	0.00 1000gal	0.5 lbs/1000gal	0.000 tons
				1.065 total tons per year
Formaldehyde	Nat.Gas	387.10 MMcf	0.075 lbs/MMcf	0.015 tons
Formaldehyde	Propane	0.00 1000gal	n/a	n/a
				0.015 total tons per year
Ammonia*****	Nat.Gas	387.10 MMcf	3.2 lbs/MMcf	0.619 tons
Ammonia	Propane	0.00 1000gal		n/a
				0.619 total tons per year

note: * Unit # 6 has not been constructed

** The NOx emissions are calculated from CEM data. The source of all other Emission Factors is the EPA's AP-42, 5th ed. (7/1998).

*** the emission factor of 0.6 assumes an average sulfur concentration in Nat. Gas of 2000 grains/MMcf.

**** the emission factor of 0.02 assumes that propane contains the same concentration of sulfur as natural gas quoted in AP-42 (0.2 grains/1000cf).

***** The ammonia emission factor from Development and Selection of Ammonia Emission Factors - Final Report. R. Battye, W. Battye, C. Overcash, and S. Fudge; EC/R Incorporated; Durham, NC. Report prepared for USEPA Office of Research and Development; August, 1994

(1) Muriatic Acid (with 29% w HCl) is used in the Utilities Center for regeneration of deionizing units. The process is a closed system, thus no emissions are released.
In addition, due to the solubility of HCl in water it is believed that all HCl is spent in the system and no HCl emissions are reported.
Boilers 4, 5, 6 4/14/2010

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Actual Emissions for Calendar Year 2009
Malt Receiving and Handling

	Throughput (tons/year)	Control	Capture Efficiency	Control Efficiency ^a	
				PM	PM ₁₀
Grain Receiving - Railcar	57,844	Choke Unloading into Pit Aspirated to Baghouse	50%	see control efficiency by particle size below	99.5%
Headhouse and Internal Handling	57,844	Baghouses	100%	For Total PM - see control efficiency by particle size below	99.5%

^aAppendix B of AP-42 (Table B.2.4) provides data on baghouse (fabric filter low temperature) control efficiencies by particle size for particles up to 10 µm. Particle size distribution for grain handling data is also available from AP-42, Appendix B (Page B.2-16). The malt receiving and handling baghouses will be designed for 99.9% control for particles over 30 µm. The controlled PM emissions have been calculated using this design point and the data from AP-42, Appendix B.

AP-42 Table 9.9.1-1 provides a PM₁₀ emission factor specifically for railcar unloading and handling. It is believed that this emission factor would more closely represent actual PM₁₀ emissions from these activities better than using the PM emission factor and applying the particle size distribution and control efficiency data from AP-42, Appendix B. PM₁₀ emissions have been calculated using the emission factor from Table 9.9.1-1 and applying a 99.5% control efficiency.

From AP-42 Appendix B, Page B.2-16:

Particle Size (µm)	Cumulative % ≤ state size (uncontrolled)
1.0	0.07%
2.0	0.6%
2.5	1%
3.0	2%
4.0	3%
5.0	5%
6.0	7%
10.0	15%

Particle Size (µm)	Control Efficiency (%)	Reference
0-2.5	99.0%	AP-42, Appendix B, Table B.2.4 : Fabric Filter - Low Temperature
2.5-6	99.5%	AP-42, Appendix B, Table
6-10	99.5%	AP-42, Appendix B, Table
>30	99.9%	Design

Particle Size Range (µm)	Overall
0-2.5	1%
2.5-6	6%
6-10	8%

Overall Size Range = Cumulative % for upper end of category - Cumulative % for the lower end of the particle size

For Example:

Overall Size Range for 2.5 - 6 µm = Cumulative % for 6 µm - Cumulative % for 2.5 µm

>30	85%
Total	100%

Coors Brewing Company
Shenandoah Brewery
Malt Receiving and Handling

	Emission Factor (lb/ton of grain)		Particle Size Range (µm)	Emissions (tons/year)		
	PM	PM ₁₀		PM	PM ₁₀	
Grain Receiving - Railcar	AP-42 (5/98) Table 9.9.1-1 Grain Receiving Railcar SCC 3-02-005-53	0.032	0.0078	Total Uncontrolled	0.93	0.23
				Uncaptured	0.46	0.11
				Captured and Controlled	0.00005	0.0006
				2.5-6	0.00014	
				6-10	0.00019	
			>30	0.00039	0.11	
			Total	0.46		
Headhouse and Internal Handling	AP-42 (5/98) Table 9.9.1-1 Headhouse and Internal Handling SCC 3-02-005-30	0.061	0.034	Total Uncontrolled	1.76	0.98
				Captured and Controlled	0.0002	0.005
				2.5-6	0.0005	
				6-10	0.0007	
					>30	0.0015
Total				0.003	0.005	
TOTAL				0.47	0.12	

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$$\text{Grain Throughput } \frac{\text{tons}}{\text{year}} = \frac{\text{trucks}}{\text{week}} \times 52 \text{ weeks} \times \frac{165,000 \text{ lb}}{\text{truck}} \times \frac{\text{tons}}{2000 \text{ lb}}$$

$$\text{Grain Throughput } \frac{\text{lb}}{\text{hour}} = \frac{\text{tons}}{\text{year}} \times \frac{\text{year}}{8760 \text{ hours}}$$

Capture Efficiency for Grain Unloading is a conservative estimate

$$\text{Uncontrolled } \frac{\text{lb}}{\text{hour}} = \frac{\text{lb}}{\text{ton}} \times \frac{\text{tons}}{\text{hour}}$$

$$\text{Uncaptured } \frac{\text{lb}}{\text{hour}} = \frac{\text{lb}}{\text{ton}} \times \frac{\text{tons}}{\text{hour}} \times (1 - \text{capture efficiency})$$

$$\text{Controlled } \frac{\text{lb}}{\text{hour}} = (\text{Uncontrolled } \frac{\text{lb}}{\text{hour}} - \text{Uncaptured } \frac{\text{lb}}{\text{hour}}) \times (\text{Overall \% for Particle Size Range}) \times (1 - \text{Control Efficiency for Range})$$

$$\text{Controlled PM}_{10} \frac{\text{lb}}{\text{hour}} = (\text{Uncontrolled } \frac{\text{lb}}{\text{hour}} - \text{Uncaptured } \frac{\text{lb}}{\text{hour}}) \times (1 - \text{Control Efficiency})$$

$$\text{Total } \frac{\text{lb}}{\text{hour}} = \text{Uncontrolled } \frac{\text{lb}}{\text{hour}} + \text{Controlled } \frac{\text{lb}}{\text{hour}}$$

$$\text{Uncontrolled tons} = \frac{\text{lb}}{\text{ton}} \times \frac{\text{tons}}{\text{year}} \times 2000 \text{ lb}$$

$$\text{Uncaptured tons} = \frac{\text{lb}}{\text{year}} \times \frac{\text{tons}}{\text{ton}} \times (1 - \text{capture efficiency}) \times \frac{\text{tons}}{2000 \text{ lb}}$$

$$\text{Controlled tons} = (\text{Uncontrolled tons} - \text{Uncaptured tons}) \times (\text{Overall \% for Particle Size Range}) \times (1 - \text{Control Efficiency for Range})$$

$$\text{Controlled PM}_{10} \text{ tons} = \text{Uncontrolled tons} - \text{Uncaptured tons} \times (1 - \text{control efficiency})$$

$$\text{Total tons} = \text{Uncontrolled tons} + \text{Controlled tons}$$

Total = Emissions from Grain Receiving Railcar + Emissions from Headhouse and Internal Handling

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Actual Emissions for Calendar Year 2009
Malt Storage, Screening, and Milling

	Throughput (tons/year)	Control Efficiency ^a	
		Control	PM
Malt Storage	57,844	Baghouse	see control efficiency by particle size below
Malt Screening	57,322	Baghouse	For Total PM - see control efficiency by particle size below
Malt Milling	57,322	Baghouse	99.5%

^aAppendix B of AP-42 (Table B.2.4) provides data on baghouse (fabric filter low temperature) control efficiencies by particle size for particles up to 10 µm. Particle size distribution data for grain handling (Page B.2-16) and grain processing (Page B.2-17) are also available from AP-42, Appendix B. The malt storage, screening, and milling baghouses will be designed for 99.9% control for particles over 30 µm. The controlled PM emissions for malt storage and screening have been calculated using this design point and the data from AP-42, Appendix B.

AP-42 Tables 9.9.1-1 and 9.9.1-2 provide information on the percentage of PM emissions that are PM₁₀. For malt screening rather than using the PM emission factors and applying the particle size distributions and control efficiency data from AP-42, Appendix B, PM₁₀ emissions have been calculated using the data from AP-42 Tables 9.9.1-1 and applying a 99.5% control efficiency. For malt milling, Table 9.9.1-2 indicates that 100% of the PM emissions are PM₁₀. Both PM and PM₁₀ emissions for malt milling have been

Particle Size (µm)	Grain Handling		Grain Processing Cumulative % ≤ state size (uncontrolled)
	Cumulative % ≤ state size (uncontrolled)		
1.0		0.07%	8%
2.0		0.6%	18%
2.5		1%	23%
3.0		2%	27%
4.0		3%	34%
5.0		5%	40%
6.0		7%	43%
10.0		15%	61%
Particle Size Range (µm)		Overall	Overall
0-2.5		1%	23%
2.5-6		6%	20%
6-10		8%	18%
>30		85%	39%
Total		100%	100%

Overall Size Range = Cumulative % for upper end of category - Cumulative % for the lower end of the particle size

For Example:

Overall Size Range for 2.5 - 6 µm = Cumulative % for 6 µm - Cumulative % for 2.5 µm

Particle Size (µm)	Control Efficiency (%)	Reference
0-2.5	99.0%	AP-42, Appendix B, Table B.2.4 : Fabric Filter - Low
2.5-6	99.5%	AP-42, Appendix B, Table B.2.4 : Fabric Filter - Low
6-10	99.5%	AP-42, Appendix B, Table B.2.4 : Fabric Filter - Low
>30	99.9%	Design

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Calculated Uncontrolled Emission Factor For Grain Cleaning

AP-42 BID Reference No.	Grain Cleaner Cyclone Outlet Emissions (lb/ton)	Grain Cleaner Cyclone Inlet Emissions (lb/ton)
22	0.029	Available
25	0.009	0.27
27	0.157	0.14
40	0.0897	2.2
42	0.0694	0.43
	0.0973	0.18
Average	0.075	0.64

The Background Information Document (BID) for AP-42 Section 9.9.1 (May 1998) contains source testing data for five grain cleaners taken at the inlet of the cyclones used to control emissions. According to the BID, this data was not used to calculate an uncontrolled grain cleaning emission factor for AP-42 because "it is agreed that the emission estimates based on control device inlet data are biased high for uncontrolled emissions at operations not equipped with aspiration systems." Grain cleaning at the Shenandoah Brewery will be equipped with an aspiration system.

Using the inlet data from the BID to calculate an uncontrolled emission factor appears to represent a conservative approach to estimating grain cleaning emissions. The cyclone outlet data has been averaged to verify that the emission factor found in AP-42 is a simple average of the available data. As this is the case, the cyclone inlet data has been averaged to obtain an

	Emission Factor Reference	Emission Factor (lb/ton of grain)		Particle Size Range (µm)	Emissions (tons/year)	
		PM	PM ₁₀		PM	PM ₁₀
Malt Storage	AP-42 (1995) Table 9.9.7-1 Starch storage bin SCC 3-02-014-08 Only controlled emission factor is available in AP-42. The Background Information Document for section 9.9.7 does not include any data on uncontrolled emissions. The controlled emission factor has been adjusted assuming a baghouse control of 99%. AP-42 does not contain an emission factor for PM ₁₀	0.14		Total Uncontrolled	4.05	
				0-2.5	0.000	
				2.5-6	0.001	0.003
				6-10	0.002	
Malt Screening	PM factor has been calculated based on data for Grain Cleaning - Internal Vibrating with Cyclone SCC 3-02-005-37 in Background Information Document for AP-42 Section 9.9.1 (5/98) - See Table Below PM ₁₀ factor based on footnote to AP-42 Table 9.9.1-1 which indicates that PM ₁₀ is 25% of PM.	0.843	0.161	Total Uncontrolled	18.42	4.60
				0-2.5	0.04	
				2.5-6	0.02	0.02
				6-10	0.02	
Malt Milling	Footnote to Table 9.9.1-2 indicates that PM ₁₀ = 100% of PM	1.20	1.20	Total	0.01	
				>30	0.01	
				Total Uncontrolled	34.39	34.39
				Total	0.17	0.17
TOTAL					0.26	0.20

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Adjustment of Malt Storage and Malt Milling Controlled Emission Factors

$$\text{Uncontrolled Factor } \frac{\text{lb}}{\text{ton}} = \frac{\text{Controlled Factor (lb/ton)}}{(1 - \text{Control Efficiency})}$$

Emissions

$$\text{Uncontrolled } \frac{\text{lb}}{\text{hour}} = \frac{\text{lb}}{\text{ton}} \times \frac{\text{tons}}{\text{ton hour}}$$

$$\text{Controlled } \frac{\text{lb}}{\text{hour}} = \text{Uncontrolled } \frac{\text{lb}}{\text{hour}} \times (\text{Overall \% for Particle Size Range}) \times (1 - \text{Control Efficiency for Range})$$

$$\text{Malt Storage Controlled PM}_{10} \frac{\text{lb}}{\text{hour}} = \text{Controlled PM (0 - 2.5 } \mu\text{m)} \frac{\text{lb}}{\text{hour}} + \text{Controlled PM (2.5 } \mu\text{m - 6 } \mu\text{m)} \frac{\text{lb}}{\text{hour}} + \text{Controlled PM (6 } \mu\text{m - 10 } \mu\text{m)} \frac{\text{lb}}{\text{hour}}$$

$$\text{Malt Screening and Milling Controlled PM}_{10} \frac{\text{lb}}{\text{hour}} = \text{Uncontrolled } \frac{\text{lb}}{\text{hour}} \times (1 - \text{Control Efficiency})$$

$$\text{Uncontrolled } \frac{\text{tons}}{\text{year}} = \frac{\text{lb}}{\text{ton}} \times \frac{\text{tons}}{\text{year}} \times \frac{\text{tons}}{2000 \text{ lb}}$$

$$\text{Controlled tons} = \text{Uncontrolled tons} \times (\text{Overall \% for Particle Size Range}) \times (1 - \text{Control Efficiency for Range})$$

$$\text{Malt Storage Controlled PM}_{10} \frac{\text{tons}}{\text{year}} = \text{Controlled PM (0 - 2.5 } \mu\text{m)} \frac{\text{tons}}{\text{year}} + \text{Controlled PM (2.5 } \mu\text{m - 6 } \mu\text{m)} \frac{\text{tons}}{\text{year}} + \text{Controlled PM (6 } \mu\text{m - 10 } \mu\text{m)} \frac{\text{tons}}{\text{year}}$$

$$\text{Malt Screening and Milling Controlled PM}_{10} \frac{\text{tons}}{\text{year}} = \text{Uncontrolled } \frac{\text{tons}}{\text{year}} \times (1 - \text{control efficiency})$$

$$\text{Total for Emission Unit} = \text{Emissions from Malt Storage} + \text{Emissions from Malt Screening} + \text{Emissions from Malt Milling}$$

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Actual Emissions for Calendar Year 2009
Brewing Process (Emission Unit 20)

Brewhouse - 2 Brewlines	Throughput (barrels/year)
	3,191,000

	Emission Factor Reference	Emission Factor (lb/1000 barrels)			Emissions (tons/year)		
		PM	PM ₁₀	VOC	PM	PM ₁₀	VOC
Mash-In - 2 per line	AP-42 (10/96) Table 9.12.1-2 Mash tun SCC 3-02-009-21	None Emitted	None Emitted	0.054			0.09
Lauter Tun - 1 per line	AP-42 (10/96) Table 9.12.1-2 Lauter tun SCC 3-02-009-23	None Emitted	None Emitted	0.0055			0.009
Combi Kettle - 2 per line	AP-42 (10/96) Table 9.12.1-2 Brew kettle VOC = 0.84 lb/1000 barrel SCC 3-02-009-07 There is no emission factor for PM ₁₀ assume PM ₁₀ = 100%PM and (for VOCs only) Hot wort settling tank VOC = 0.075 lb/1000 barrel SCC 3-02-009-24	0.41	0.41	0.715	0.65	0.65	1.14
Trub Tanks	AP-42 (10/96) Table 9.12.1-2 Trub vessel -- filling SCC 3-02-009-26	None Emitted	None Emitted	0.25			0.40
TOTAL					0.65	0.65	1.63

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The combi kettle performs the functions of both a brew kettle and a hot wort settling tank

$$\text{Combi Kettle VOC Emission Factor} \frac{\text{lb}}{1000 \text{ barrels}} = \text{Brew Kettle Emission Factor } 0.84 \frac{\text{lb}}{1000 \text{ barrels}} + \text{Hot Wort Settling Tank Emission Factor } 0.075 \frac{\text{lb}}{1000 \text{ barrels}}$$

$$\text{Emissions} \frac{\text{tons}}{\text{month}} = \frac{\text{lb}}{\text{thousand barrels}} \times \frac{\text{barrels}}{\text{day}} \times \frac{\text{thousand barrels}}{1000 \text{ barrels}} \times \frac{\text{days}}{\text{month}} \times \frac{\text{tons}}{2000 \text{ lb}}$$

$$\text{Emissions tons} = \frac{\text{lb}}{\text{thousand barrels}} \times \frac{\text{barrels}}{\text{year}} \times \frac{\text{thousand barrels}}{1000 \text{ barrels}} \times \frac{\text{tons}}{2000 \text{ lb}}$$

Actual Emissions for Calendar Year 2009
Fermentation (Emission Unit 23)

Tanks vented to atmosphere per year	Fermentation tank capacity (bbl per year)	Throughput (bbl per year)
	3,000	180,000

CO ₂ system outage	(hours/year)
	0

Activity	Emission Factor Reference	Emission Factor		Emissions	
		VOC	(lb/1000 barrels)	VOC	(tons/year)
Purging	Evacuation EF calculated based on Coors Golden stack test. Units of lb/1000 bbl evacuated.		1.05		0.09
			(lb/hour)		(tons/year)
CO ₂ system outage (30 days per year)	Assume all 64 fermenting vessels are venting to atmosphere during outage		11.33		0.00
TOTAL					0.095

Emissions	tons	=	lb	thousand barrels	x	barrels	x	thousand barrels	x	1 event	x	tons
	month					event		1000 barrels		month		2000 lb
Emissions	tons	=	lb	thousand barrels	x	barrels	x	thousand barrels	x	tons		
	year					year		1000 barrels		2000 lb		
Emissions	tons	=	lb	x	24 hours	x	days	x	tons			
	month		hour	day	month	2000 lb						
Emissions	tons	=	lb	x	24 hours	x	days	x	tons			
	year		hour	day	year	2000 lb						

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Actual Emissions for Calendar Year 2009
Maturation (Emission Unit 24)

Maturation (Aging)	Throughput (barrels/year)
	3,191,000

	Emission Factor Reference	Emission Factor	Emissions
		(lb/1000 barrels)	(tons/year)
Maturation (Aging)	AP-42 (10/96) Table 9.12.1-2 Aging tank -- filling SCC 3-02-009-08	VOC 0.57	VOC 0.91

$$\begin{aligned} \text{Emissions } \frac{\text{tons}}{\text{month}} &= \frac{\text{lb}}{\text{thousand barrels}} \times \frac{\text{barrels}}{\text{hour}} \times \frac{\text{thousand barrels}}{1000 \text{ barrels}} \times \frac{24 \text{ hours}}{\text{day}} \times \frac{31 \text{ days}}{\text{month}} \times \frac{\text{tons}}{2000 \text{ lb}} \\ \text{Emissions tons} &= \frac{\text{lb}}{\text{thousand barrels}} \times \frac{\text{barrels}}{\text{year}} \times \frac{\text{thousand barrels}}{1000 \text{ barrels}} \times \frac{\text{tons}}{2000 \text{ lb}} \end{aligned}$$

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**Actual Emissions for Calendar Year 2009
Blending & Finishing (Emission Unit 25)**

***Note 1 *Note 2**

Pollutant	Throughput (lbs CO ₂ /yr)	EF (lb/1000-lbs CO ₂)	Actual Emissions	
			tpm	tpy
VOC	4,885,359	0.174	0.04	0.43

CONDITIONING TANKS, FILL-ON-VENT

***Note 3 *Note 4**

Pollutant	Throughput (bbl evac/yr)	EF (lb/1000-bbl evac)	Actual Emissions	
			tpm	tpy
VOC	479,880	1.05	0.02	0.25

CONDITIONING TANKS, EVACUATION

***Note 5**

Allowable Emissions		
	tpm	tpy RAV
TOTAL VOC	0.06	0.68
		3.00

Note 1: Fill-on-vent throughput from CO2 usage

Note 2: Fill-on-vent EF from 8/20/96 "Monitoring Study of Ethanol Release from Beer Transfer Operations at the Coors Shenandoah Brewery"

Note 3: Evacuation capacity from October 2004 "Permit Revision abd BACT Update, Coors Brewing Company, Shenandoah Brewery"

Note 4: Evacuation EF from 7/9/97 AF calcs

Note 5: Allowable Emissions means controlled emissions per Title V permit condition IV.A.17.

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Actual Emissions for Calendar Year 2009
Waste Beer Tanks (Emission Unit 26)

WASTE BEER HANDLING

43,500 GAL TANK #1 STANDING LOSSES
43,500 GAL TANK #1 WORKING LOSSES
14,500 GAL TANK #1 STANDING LOSSES
14,500 GAL TANK #1 WORKING LOSSES
14,500 GAL TANK #2 STANDING LOSSES
14,500 GAL TANK #2 WORKING LOSSES

SCC	Pollutant	Throughput (gal/yr)	ER (lb/yr)	EF (lb/1000-bbl)	Actual Emissions	
					tpm	tpy
3-02-009-65	VOC	158,720	68.86	TANKS	0.003	0.034
3-02-009-65	VOC	158,720	-25.21	TANKS	-0.001	-0.013
3-02-009-65	VOC	158,720	0.00	TANKS	0.000	0.000
3-02-009-65	VOC	158,720	0.00	TANKS	0.000	0.000
3-02-009-65	VOC	158,720	0.00	TANKS	0.000	0.000
3-02-009-65	VOC	158,720	0.00	TANKS	0.000	0.000

*Note 1

Beer Brewed (bbl)		ER (lb/bbl brewed)	Actual Emissions	
			tpm	tpy
Yeast Tanks (Note 2)		VOC	3,191	2.90E-04
			Note 3	0.000
			0.000	0.000

TOTAL VOC 0.00 0.02

Note 1: Allowable Emissions means controlled emissions per Title V permit condition IV.A.17.
Note 2: Yeast tanks include yeast storage tanks, surplus yeast storage tanks, and surplus yeast loadout truck
Note 3: Yeast tanks emission factor based on TANKS 4 emissions calculations at maximum brewery production.

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Actual Emissions for Calendar Year 2009
CO₂ Recovery (Emission Unit 38)

Regeneration (hours/year) 3.948 Emissions only occur during regeneration

	lb/hour	tons/year
Acetaldehyde	0.38	0.75
Ethyl Acetate	2.89	5.70
TOTAL		6.45

Throughput tons CO₂ = $\frac{\text{lb CO}_2}{\text{year}} \times \frac{\text{hours}}{\text{hour}} \times \frac{\text{tons}}{2000 \text{ lb}}$

Throughput and $\frac{\text{lb}}{\text{hour}}$ values are design data

$\frac{\text{tons}}{\text{month}} = \frac{\text{lb}}{\text{hour}} \times \frac{4 \text{ regeneration hours}}{8 \text{ operating hours}} \times \frac{24 \text{ hours}}{\text{day}} \times \frac{31 \text{ days}}{\text{month}} \times \frac{\text{tons}}{2000 \text{ lb}}$

$\frac{\text{tons}}{\text{year}} = \frac{\text{lb}}{\text{hour}} \times \frac{\text{hours}}{\text{year}} \times \frac{\text{tons}}{2000 \text{ lb}}$

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Actual Emissions for Calendar Year 2009
Packaging Lines (Emission Unit 27)

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*Notes 1-4

SCC	Pollutant	Throughput (bbl/yr)	EF (lb/1000-bbl)	Actual Emissions	
				tpm	tpy
3-02-009-52,54,55	Acetaldehyde	6,381,260	0.0685	0.02	0.22
3-02-009-54	VOC	1,621,080	36	2.43	29.18
3-02-009-52	VOC	4,037,390	37.5	6.31	75.70
3-02-009-55	VOC	722,790	0.675	0.02	0.24

FILLING LINES (ALL)
STERILIZED BOTTLE FILLING LINE
STERILIZED CAN FILLING LINE
KEG FILLING LINE

*Note 5

Allowable Emissions	
tpm	tpy RAV
8.76	105.12
TOTAL VOC	24.40
	140.00

Note 1: MRI EF for sterile bottle filling line is an average factor based on 3 Coors Golden stack tests on 6/25/92, 10/14/92, and 12/2/92.

0.033 lb VOC/bbl derived from 10/14/92 test (APT report 10/92; ST file 5.2)

0.038 lb VOC/bbl (#3 bottle filler) from 12/2/92 test (APT report 12/92; ST file 5.3)

Thus the APT average factor is 0.035 lb VOC/bbl (true avg = 0.0355).

0.039 lb VOC/bbl derived from 6/25/92 test (CAE report 11/25/92, #6256-1, ST file 5.4)

The MRI factor is the average of 0.035 and 0.039 = 0.037.

True average factor of all 3 tests is 36.7 lb VOC/1000-bbl.

Note 1: MRI EF for sterile can filling line is an average factor based on 5 Coors Golden stack tests on 6/23/92, 10/14/92, 12/2/92, 12/4/92, and 12/16/92.

0.042 lb VOC/bbl (#9 can filler) from 12/4/92 test (APT report 12/92; ST file 5.1)

0.029 lb VOC/bbl from 10/14/92 test (APT report 10/92; ST file 5.2)

0.036 lb VOC/bbl (#5 can filler) from 12/2/92 test (APT report 12/92; ST file 5.3)

0.037 lb VOC/bbl (#6 can filler) from 12/16/92 test (APT report 12/92; ST file 5.3)

Thus the APT average factor is 0.036 lb VOC/bbl (true avg = 0.0360).

0.040 lb VOC/bbl derived from 6/23/92 test (CAE report 11/25/92, #6256-1; ST file 5.4)

The MRI factor is the average of 0.036 and 0.040 = 0.038. This 0.038 value is from taking the average of an average.

True average factor of all 5 tests is 36.8 lb VOC/1000-bbl.

Note 3: EFs were compared to AP-42, 5th ed., Section 9.12.1. The AP-42 EFs for sterile bottle filling line and sterile can filling line are averages from Coors data on AP-42 averages are higher than those submitted to MRI, because another APT stack test (APT report 4/3-4/95) was included in the averages.

Note 4: EF for keg filling line from Coors Golden stack test 6/25/92 (CAE report 11/25/92, #6256-1; ST file 5.4)

Note 5: Allowable Emission means controlled emissions per Title V permit condition V.A.8.

Actual Emissions for Calendar Year 2009
Conveyor Lubrication (Emission Unit 28)

Pollutant	*Note 1		*Note 2		*Note 3		
	Throughput (gal/yr)	EF (lb/gal)	Actual Emissions		Allowable Emissions		
			tpm	tpy	tpm	tpy RAV	
VOC	23,405.00	0.000	0.00	0.00	1.10	8.00	

CONVEYOR LUBRICATION

CONVEYOR LUBRICATION

Note 1: Throughput based on chemical inventory of lubricants purchased
 Note 2: EF = Sum of volatiles (lbs)/ Sum of usage (gallons); (using various lubricants at different usage rates). See calculations below.
 Note 3: Allowable Emissions means controlled emissions per Title V permit condition V.A.8.

Usage (gallons)	Density (lbs/gal)	% Volatiles	VOC (lbs)
Lubri-Klenz S	8.60	0	0
Sani Glide	8.99	0	0
Vektor 100	8.45	3	0
Total	33,829		0
			E.F.= 0.000

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Actual Emissions for Calendar Year 2009
Product Marking (Emission Unit 29)

Pollutant	*Note 1		*Note 2		*Note 3	
	Throughput (gal/yr)	EF (lb/gal)	Actual Emissions		Allowable Emissions	
VOC	415.72	5.76	tpm	tpy	tpm RAV	tpy RAV
			0.10	1.20	1.88	11.00

VIDEO JET INK PRINTERS

Note 1: Throughput from purchasing records for 2006.
 Note 2: Due to the fact that several products were used during the year, the emission factor for actual emissions is as follows:
 EF= Sum of actual volatiles (lbs)/Sum of actual usage (gallons); assuming all volatiles are organic. See calculations below.
 Note 3: Allowable Emissions means controlled emissions per Title V permit condition V.A.8.

	Throughput (gallons)	Density (lbs/gallon)	Throughput (lbs)	VOC content		VOC (lbs)	VOC content		VOC (lbs/gal)
Videojet Ink - 16-2500Q (gal/yr)	0.00	8.15	0.00	68.1%		0.00			
Videojet Ink - 16-2505 (gal/yr)	0.00	6.65	0.00	99.0%		0.00			
Videojet Ink - 16-8200 (gal/yr)	20.25	7.40	149.84	74.0%		110.88			
Videojet Ink - 16-8205 (gal/yr)	96.75	7.40	715.90	74.0%		529.76			
Videojet Ink - 16-8560 (gal/yr)	58.50	7.90	462.05	65.0%		300.33			
Videojet Ink - 16-8565 (gal/yr)	58.50	6.57	384.23	99.0%		380.39			
Videojet Ink - 16-8640 (gal/yr)	180.00	7.40	1,331.90	80.0%		1,065.52			
Videojet Ink - 16-8645 (gal/yr)	0.00	6.73	0.00	99.0%		0.00			
Keg Coding Ink - V422-D (gal/yr)	0.00	7.48	0.00	76.0%		0.00			
Keg Coding Ink - V707 (gal/yr)	1.19	1.98	2.35	99.0%		2.32			
Keg Coding Ink - V907 (gal/yr)	0.53	7.48	3.95	100.0%		3.95			
Total	415.72					2,393.17			5.76

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Actual Emissions for Calendar Year 2009
Carton Assembly & Bottle Label Application (Emission Unit 30)

To: _____

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*Note 1

*Note 2

*Note 3

Throughput (gal glue/yr)	VOC Content (lb VOC/gal glue)	Actual Emissions		Allowable Emissions	
		tpm	tpy	tpm	tpy RAV
42,943	0.01	0.01	0.17	0.22	1.00
32,684	0.03	0.04	0.53	2.86	16.00

CARTON ASSEMBLY (HOT MELT)
BOTTLE LABEL APPLICATION

Note 1: Chemical usage from 2006 chemical inventory; throughput (gal) = throughput (lbs) / density (lb/gal)

Note 2: VOC content for Hot melt is reported as zero by the manufacturer, however, 0.1% by weight is used as a conservative calculation. VOC content for bottle label application WB-5000 and WB-5020 is 11 g VOC/liter of material less water and exempt solvent per MSDS. Aabbitt 712-150 VOC content is 0.22 wt%. XR-2937 VOC content is 0.34%. See calculations below.

Note 3: Allowable Emissions means controlled emissions per Title V permit condition V.A.8.

21/31

Carton Assembly	Throughput (lbs)	Density (lbs/gallon)	Throughput (gallons)	VOC content (% wt.)	VOC (lbs)	VOC content (lbs VOC/gal)
HL-9256	343,115	7.99	42,943.05	0.1	343.12	
Total			42,943.05		343.12	0.01

Label Adhesive	Throughput (lbs)	Density (lbs/gallon)	Throughput (gallons)	VOC content (lbs VOC/gal)	VOC (lbs)	VOC content (lbs VOC/gal)
Label Adhesive Usage - WB-5000 (lbs/yr)	0	9.2	0.00	0.092	0.00	
Label Adhesive Usage - WB-5020 (lbs/yr)	0	9.5	0.00	0.092	0.00	
Label Adhesive Usage - Optal 10-7357 (lbs/yr)	0	9.5	0.00	0.092	0.00	
Carton Adhesive usage - HL-9256 (lbs/yr)	0	9.5	0.00	0.000	0.00	
Label Adhesive Usage - XR-2937 (lbs/yr)	310,500	9.5	32,684.21		1,055.70	
Label Adhesive Usage - Aabbitt 712-150 (lbs/yr)	0	9.45	0.00		0.00	
Total			32,684.21		1,055.70	0.03

Actual Emissions for Calendar Year 2009
Waste Beer Defill (Emission Unit 32)

SCC	Pollutant	Throughput (lb mat/yr)	EF (lb VOC/lb mat)	Actual Emissions	
				tpm	tpy
3-02-009-61	VOC	1,929,840	0.001	0.08	0.92
3-02-009-61	VOC	341,611	0.035	0.51	6.06
TOTAL VOC				0.58	6.98

Bottle crusher
Can crusher w/ pneumatic conveyor & cyclone

Note 1: Throughput from 2006 recycled inventory
Note 2: EFs from 7/1/97 AF calculations. See calculations below.
Note 3: Allowable Emissions means controlled emissions per Title V permit condition V.A.8.

Emission Factors:

Stack test (lb VOC/hour)	U.F.	Capacity (lb mat/hour)	Emission Factor
1.4	1.5	2200	0.001
3.194	1.5	135	0.035

Bottle Crusher:
Can Crusher:

Note 1: MRI submittal used one EF for the entire defill unit. EF units in lb/hr operated
Note 2: AP-42, 5th ed., Section 9.12.1 "bottle crusher" EF from Coors Golden stack test 4/21/93; units in lb VOC/batch glass crushed
Note 3: AP-42, 5th ed., Section 9.12.1 "can crusher with pneumatic conveyor" EF from Coors Golden stack test 10/21/93; units in lb VOC/gal beer recovered

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Actual Emissions for Calendar Year 2009
Wastewater Treatment - Biogas Boilers #1 and #2 (Emission Unit 33)

	Throughput (million cubic feet/year)
Biogas Boiler #1	17.83
Biogas Boiler #2	52.92

Pollutant	PM	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	VOCs	NH ₃
Emission Factors (lb/mmCF)	7.6	7.6	7.6	32.0	100	84	5.5	3.2
Emission Factor Reference	AP-42 Table 1.4-2 Dated 7/98	AP-42 Table 1.4-2 Dated 7/98	Assume equal to PM ₁₀	Assume 200 ppmv H ₂ S in gas Assume 98% converted to SO ₂	AP-42 Table 1.4-1, Small Boiler, Uncontrolled Dated 7/98	AP-42 Table 1.4-1, Small Boiler, Uncontrolled Dated 7/98	AP-42 Table 1.4-2 Dated 7/98	Development and Selection of Ammonia Emission Factors, August 1994
Biogas Boiler #1	0.07	0.07	0.07	0.29	0.89	0.75	0.05	0.03
Biogas Boiler #2	0.20	0.20	0.20	0.85	2.65	2.22	0.15	0.08
Total Emission Rate (tons/year)	0.27	0.27	0.27	1.13	3.54	2.97	0.19	0.11

$$\frac{\text{lb}}{\text{hour}} = \frac{\text{lb}}{\text{mmCF}} \times \frac{\text{mmCF}}{\text{hour}}$$

$$\frac{\text{tons}}{\text{year}} = \frac{\text{lb}}{\text{mmCF}} \times \frac{\text{mmCF}}{\text{year}} \times \frac{\text{tons}}{2000 \text{ lb}}$$

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Actual Emissions for Calendar Year 2009
Wastewater Treatment Plant (Emission Unit 33)

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*Note 1, 2, 4-6, 8

*Note 3, 7

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SCC	Pollutant	Throughput Units	Throughput MGD	EF	EF units lb/MMBtu	Controlled Actual Emissions	
						tpm	tpy
COLLECTION SYSTEM PRIMARY TREATMENT SYSTEM	VOC	0.70	7.860	3.76	lb/MMBtu	0.08	1.00
	CH4	7.860	7.860	4.08	lb/MMBtu	0.03	0.39
	H2S	7.860	7.860	0.029	lb/MMBtu	0.000	0.003
BIOGAS FLARE	PM from flare	7.860	7.860	0.14	lb/MMBtu	0.056	0.67
	SO2 from flare	7.860	7.860	0.05	lb/MMBtu	0.020	0.24
	NOx from flare	7.860	7.860	0.088	lb/MMBtu	0.027	0.33
SECONDARY TREATMENT SYSTEM	CO from flare	7.860	7.860	0.37	lb/MMBtu	0.149	1.78
	VOC	0.70	7.860	6.42	lb/MMBtu	0.14	1.71

*Note 9

Allowable Emissions	
tpm	tpy RAV
0.88	4.00
TOTAL VOC	0.23
TOTAL PM	0.06
TOTAL SO2	0.02
TOTAL NOx	0.03
TOTAL CO	0.15
TOTAL H2S	0.000

COLLECTION SYSTEM

Note 1: EF from 7/15/97 AF calcs

PRIMARY TREATMENT SYSTEM

Note 2: EFs from 5/27/97 AF calcs

Note 3: Control efficiency for flare is 98% per AP-42, 5th ed., Section 13.5

BIOGAS FLARE

Note 4: PM, NOx, CO EFs from AP-42, 5th ed., Section 13.5; units in lb/MMBtu; AP-42 EFs based on tests using waste gas containing 80% propane and 20% propane; biogas contains 60% CH4, 40% CO2, and < 1% H2S per 4/14/95 revised interim permit application

Note 5: PM10 (soot) EF taken to be zero, since, according to AP-42, "waste gases containing methane, hydrogen, CO, and ammonia usually burn without smoke."

Note 6: SO2 EF from 5/27/97 AF calcs

Note 7: Emissions from the propane pilot flame were not calculated since pilot flame combustion emissions are negligible compared to biogas combustion emissions.

SECONDARY TREATMENT SYSTEM

Note 8: EF from 7/21/97 AK calcs

Note 9: Allowable Emissions means controlled emissions per Title V permit condition VI.A.4.

Note 10: The effluent is chlorinated, however, due to the solubility of chlorine and the fact that there is no obvious chlorine odor, it is believed that all chlorine is consumed and therefore, no emissions occur.

Note 11: Biogas boiler emissions are calculated on a separate page of this report.

Actual Emissions for Calendar Year 2009
Lime Handling (Emission Unit 16)

LIME UNLOADING
 LIME STORAGE
 LIME HANDLING

SCC	Pollutant	Throughput (tons lime/yr)	EF (lb/ton lime)	Controlled Actual Emissions			Allowable Emissions		
				gr/cuft	lb/hr	tpy			
3-05-016-12	PM/PM10	0	1.5	0.0000	0.00	0.00			
3-05-016-13	PM/PM10	0	ND	0.0000	0.00	0.00			
3-05-016-15	PM/PM10	0	2.2	0.0000	0.00	0.00			
TOTAL PM/PM10				0.0000	0.00	0.00	gr/dscf	lb/hr	tpy
							0.01	1.00	1.00

*Note 1

*Notes 2, 3 & 4

*Note 5, 6

*Note 7

- Note 1: Throughput from 2006 usage of lime through the silo
 Note 2: Both EFs from AP-42, 5th ed., Section 11.17, Table 11.17-4; all EFs are in units of lb PM/ton material processed
 Note 3: Unloading EF is actually EF for product loading, open truck
 Note 4: Handling EF is actually EF for product transfer and conveying
 Note 5: Controlled by fabric filter, 99.5% control efficiency
 Note 6: For all processes, the stack flow rate must be 11,667 acfm to meet the gr/dscf allowable limits.
 Note 7: Allowable Emissions means controlled emissions per Title V permit condition IV.A.8.

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ATTACHMENT C

MINOR NSR PERMIT

NOVEMBER 16, 2009

STATIONARY SOURCE PERMIT TO MODIFY AND OPERATE

**This permit includes designated equipment subject to
New Source Performance Standards (NSPS).**

This permit supersedes your permit dated January 19, 2007 and amended August 16, 2008.

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia
Regulations for the Control and Abatement of Air Pollution,

MillerCoors, LLC
P.O. Box 25
Elkton, Virginia 22827
Registration No.: 81012

is authorized to modify and operate

a brewery and an existing packaging facility
located at
3.5 miles south of Elkton on U.S. 340
Rockingham County, Virginia

in accordance with the Conditions of this permit.

Approved on November 16, 2009

Larry M. Simmons
Deputy Regional Director, Valley Regional Office

Permit consists of 21 pages.
Permit Conditions 1 to 62.

INTRODUCTION

This permit approval is based on the permit applications dated October 16, 2009, July 9, 2008, May 25, 2003, March 21 and April 17, 1995, July 10, 2002, October 14, 2004, March 9, 2006 and September 12, 2006, including amendment information dated April 8, April 12, May 28, June 3, June 4, June 11, June 21, July 12, July 28, August 6, and August 30, 1993, May 24, June 8, June 19, July 10, and July 11, 1995, February 5, 1997, June 27 and June 30, 2000, July 11, 2002, October 29, 2004, January 4, 2005, February 25, 2005, March 1, 2005, and April 13, 2005, and supplemental information dated October 19, 2006. Any changes in the permit application specifications or any existing facilities which alter the impact of the facility on air quality may require a permit. Failure to obtain such a permit prior to construction may result in enforcement action.

Words or terms used in this permit shall have meanings as provided in 9 VAC 5-10-20 of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. The regulatory reference or authority for each condition is listed in parentheses () after each condition.

Annual requirements to fulfill legal obligations to maintain current stationary source emissions data will necessitate a prompt response by the permittee to requests by the DEQ or the Board for information to include, as appropriate: process and production data; changes in control equipment; and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact.

The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, §§ 2.2-3700 through 2.2-3714 of the Code of Virginia, § 10.1-1314 (addressing information provided to the Board) of the Code of Virginia, and 9 VAC 5-170-60 of the State Air Pollution Control Board Regulations. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.

PROCESS REQUIREMENTS

1. **Equipment List** - Equipment at this facility consists of the following:

Equipment to be Modified			
Unit No.	Equipment Description	Rated Capacity	Federal Requirements
16	Lime Storage and Handling System	14,100 tons/yr	N/A

Equipment to be Constructed			
Unit No.	Equipment Description	Rated Capacity	Federal Requirements
6	One (1) natural gas-fired boiler	97 Million Btu/hr	40 CFR 60, Subpart Dc

Equipment permitted prior to the date of this permit			
Unit No.	Equipment Description	Rated Capacity	Federal Requirements
Fuel Burning Equipment			
4	One (1) natural-gas fired Nebraska boiler	97 Million Btu/hr	40 CFR 60, Subpart Dc
5	One (1) natural-gas fired Nebraska boiler	97 Million Btu/hr	40 CFR 60, Subpart Dc
Packaging			
27	Packaging Fillers Process	10,000,000 barrels/yr	N/A
28	Packaging Conveyor Lubrication	--	N/A
29	Product Marking	--	N/A
30	Carton Assembly	--	N/A
31	Bottle Label Application	--	N/A
32	One (1) can densifier located in packaging defill process	--	N/A
Wastewater Treatment Facility			
33	Wastewater Treatment Facility – equipped with a primary anaerobic wastewater treatment unit	Design capacity: average COD loading less than or equal to 60 lb/1000 ft ³ ·day	N/A
--	One (1) biogas Flare	11.9 Million Btu/hr	N/A
Brewhouse			
10	Grain-handling System	--	N/A
20	Brewing Process	10,000,000 barrels/yr	N/A
23	Fermenting	--	N/A
24	Maturation	--	N/A
25	Beer Conditioning Process	10,000,000 barrels/yr	N/A
26	By-products Handling System	--	N/A
36	Wet spent grain storage and loadout	--	N/A
37	Adjuncts Handling – Brewing Salts	--	N/A
38	CO ₂ Recovery System	10,000,000 barrels/yr	N/A

Existing equipment permitted not previously subject to permitting			
Unit No.	Equipment Description	Rated Capacity	Federal Requirements
Fuel Burning Equipment			
1	One (1) natural gas-fired Cleaver Brooks boiler	18 Million Btu/hr	N/A
2	One (1) natural gas-fired Cleaver Brooks boiler	18 Million Btu/hr	N/A
3	One (1) natural gas-fired Cleaver Brooks boiler	18 Million Btu/hr	N/A

Equipment exempt from permitting			
Unit No.	Equipment Description	Rated Capacity	Federal Requirements
34	One (1) biogas-fired boiler	3.954 Million Btu/hr	N/A
35	One (1) biogas-fired boiler	8.37 Million Btu/hr	N/A

Specifications included in the permit under this Condition are for informational purposes only and do not form enforceable terms or conditions of the permit.
(9 VAC 5-80-1180 D 3)

2. **Emission Controls** – Nitrogen oxide emissions from the 97 mmBTU/hr boiler (Unit 4) shall be controlled by low NO_x burners.
(9 VAC 5-50-260)
3. **Emission Controls** – Nitrogen oxide emissions from the two (2) 97 mmBTU/hr boilers (Units 5 and 6) shall be controlled by low NO_x burners and flue gas recirculation or Department of Environmental Quality approved equivalent methods.
(9 VAC 5-50-260)
4. **Emission Controls** – Particulate emissions (PM and PM-10) from the operation of the following equipment shall be controlled by fabric filters:
 - barley malt receiving system including grain receiving by railcar (choke unloading) and headhouse and internal handling (Unit 10);
 - barley malt storage, screening, and milling system (Unit 10).
(9 VAC 5-50-260)
5. **Emission Controls** – Particulate emissions (PM and PM-10) from the operation of the lime storage and handling system (Unit 16) shall be controlled by a bin vent filter.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
6. **Emission Controls** - Volatile organic compound emissions from conditioning (Unit 25) shall be controlled by maintaining closed vessels under CO₂ gas pressure during storage and cleaning activities.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
7. **Emission Controls** - Volatile organic compound emissions from the packaging operation (Unit 27) shall be controlled by beer dispensing technology and beer spillage management practices. The beer dispensing technology and beer spillage management shall include fillers which are operated to minimize overfill of containers. The packaging operation shall be maintained by the permittee such that it is in proper working order at all times.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

8. **Emission Controls** – Volatile organic compound emissions from the defill operation (Unit 32) shall be controlled by the use of a water spraying system. The water spraying system shall be maintained by the permittee such that it is in proper working order at all times and shall be in operation when the bottles and cans are crushed.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
9. **Emission Controls** – Volatile organic compound emissions from conveyor line lubrication (Unit 28) shall be controlled by the use of the current low VOC content lubricants, lubrication methods, and lubricant spillage management practices. As new low VOC content lubricants become available, the permittee shall evaluate the feasibility of their use. The conveyor line lubrication system operation shall be maintained by the permittee such that it is in proper working order at all times.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
10. **Emission Controls** – Volatile organic compound emissions from product marking (Unit 29) shall be controlled by the use of the current low VOC content product marking inks and makeup cleaners. As new inks and makeup cleaners become available, the permittee shall evaluate the feasibility of their use. The product marking operations shall be maintained by the permittee such that it is in proper working order at all times.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
11. **Emission Controls** – Volatile organic compound emissions from carton assembly (Unit 30) and bottle label application (Unit 31) shall be controlled by the use of low solvent (less than 1% volatile organic compounds by weight for carton assembly and less than 2% volatile organic compounds by weight for bottle label application) based glues.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
12. **Emission Controls** - The collection system for the wastewater treatment facility and influent structures must be covered to prevent escape of volatile organic compound emissions.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
13. **Emission Controls** – Volatile organic compound emissions from the wastewater treatment facility shall be controlled by an advanced wastewater treatment system. The advanced wastewater treatment system shall be provided with adequate access for inspection. The facility shall not exceed volatile organic compound emission limits specified in Condition 39 and shall be equipped with biogas boilers and a biogas flare for combustion of all biogas.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
14. **Monitoring Devices** - The fuel gas flow of the three (3) 18 mmBTU/hr boilers (Units 1, 2 and 3) shall be continuously measured and recorded by Equimeter Mark II Turbo-Meters fitted with Electrocorrector-P&T or a DEQ-approved equivalent method.
(9 VAC 5-80-1180, 9 VAC 5-50-20 C and 9 VAC 5-50-260)

15. **Monitoring Devices** - The fuel gas flow of the three (3) 97 mmBTU/hr boilers (Units 4, 5 and 6) shall be continuously measured and recorded by Equimeter Mark II Turbo-Meters fitted with Electrocorrector-P&T or a DEQ-approved equivalent method.
(9 VAC 5-80-1180, 9 VAC 5-50-20 C and 9 VAC 5-50-260)
16. **Monitoring Devices** - The biogas boilers and biogas flare shall be equipped with a device to ensure continuous operation of the biogas boilers and/or the biogas flare. The biogas flare shall be equipped with an automatic shutoff device and re-ignition controls. A log shall be maintained to record any periods when the biogas boilers and/or biogas flare are non-operational.
(9 VAC 5-80-1180, 9 VAC 5-50-20 C and 9 VAC 5-50-260)
17. **Monitoring Devices** - Each fabric filter and the bin vent filter shall be equipped with a device to continuously measure the differential pressure drop across the fabric filter. Each device shall be installed, maintained, calibrated and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the fabric filter is operating. A log shall be maintained in paper copy or electronic format to record the pressure drop across each filter once a month.
(9 VAC 5-80-1180, 9 VAC 5-50-20 C and 9 VAC 5-50-260)

OPERATING/EMISSION LIMITATIONS: FUEL BURNING EQUIPMENT

18. **Fuel** - The approved fuels for the six (6) process steam boilers (Units 1, 2, 3, 4, 5 and 6) are natural gas and propane. A change in the fuel may require a permit to modify and operate.
(9 VAC 5-80-1180)
19. **Fuel Throughput** - The three (3) 18 mmBTU/hr boilers (Units 1, 2 and 3), combined, shall consume no more than 464 million cubic feet of natural gas per year and 433 thousand gallons of propane per year, calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
20. **Fuel Throughput** - The three (3) 97 mmBTU/hr boilers (Units 4, 5 and 6), combined, shall consume no more than 1,666 million cubic feet of natural gas per year and 1,556 thousand gallons of propane per year, calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
21. **Boiler Operation** - At no time shall the permittee operate all three (3) of the 97 mmBTU/hr boilers (Units 4, 5 and 6) simultaneously.
(9 VAC 5-80-1180)

22. **Operating and Training Procedures** - Boiler emissions shall be controlled by proper operation and maintenance. Boiler operators shall be trained in the proper operation of all such equipment. Training shall consist of a review and familiarization of the manufacturer's operating instructions, at minimum. The permittee shall maintain records of the required training including a statement of time, place and nature of training provided. The permittee shall have available good written operating procedures and a maintenance schedule for the boilers. These procedures shall be based on the manufacturer's recommendations, at minimum. All records required by this condition shall be kept on site and made available for inspection by the DEQ.
(9 VAC 5-80-1180)

23. **Emission Limits** - Emissions from the operation of each of the 18 mmBTU/hr boilers (Units 1, 2 and 3) shall not exceed the limits specified below:

Pollutant	Fuel Type	lbs/mmBTU (per boiler)
PM	Propane Gas	0.0066
	Natural Gas	0.0075
PM-10	Propane Gas	0.0066
	Natural Gas	0.0075
Nitrogen Oxides (as NO ₂)	Propane Gas	0.0980
	Natural Gas	0.0980
Carbon Monoxide	Propane Gas	0.0354
	Natural Gas	0.0824
Volatile Organic Compounds	Propane Gas	0.0055
	Natural Gas	0.0054

(9 VAC 5-80-1180 and 9 VAC 5-50-260)

24. **Emission Limits** – Total emissions from the operation of the 18 mmBTU/hr boilers (Units 1, 2 and 3), combined, shall not exceed the limits specified below:

PM	1.89 tons/yr
PM-10	1.89 tons/yr
Nitrogen Oxides (as NO ₂)	27.31 tons/yr
Carbon Monoxide	20.18 tons/yr
Volatile Organic Compounds	1.38 tons/yr

Annual emissions shall be calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

25. **Emission Limits** - Emissions from the operation of the 97 mmBTU/hr boiler (Unit 4) shall not exceed the limits specified below:

Pollutant	Fuel Type	lbs/mmBTU (per boiler)
PM	Propane Gas	0.0066
	Natural Gas	0.0075
PM-10	Propane Gas	0.0066
	Natural Gas	0.0075
Sulfur Dioxide	Propane Gas	0.0002
	Natural Gas	0.0006
Nitrogen Oxides (as NO ₂)*	Propane Gas	0.0900
	Natural Gas	0.0900
Carbon Monoxide	Propane Gas	0.0354
	Natural Gas	0.0824
Volatile Organic Compounds	Propane Gas	0.0055
	Natural Gas	0.0054

*30-day rolling average
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

26. **Emission Limits** - Emissions from the operation of each of the two (2) 97 mmBTU/hr boilers (Units 5 and 6) shall not exceed the limits specified below:

Pollutant	Fuel Type	lbs/mmBTU (per boiler)
PM	Propane Gas	0.0066
	Natural Gas	0.0075
PM-10	Propane Gas	0.0066
	Natural Gas	0.0075
Sulfur Dioxide	Propane Gas	0.0002
	Natural Gas	0.0006
Nitrogen Oxides (as NO ₂)*	Propane Gas	0.0400
	Natural Gas	0.0400
Carbon Monoxide	Propane Gas	0.0354
	Natural Gas	0.0824
Volatile Organic Compounds	Propane Gas	0.0055
	Natural Gas	0.0054

*30-day rolling average
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

27. **Emission Limits** – Total emissions from the operation of the 97 mmBTU/hr boilers (Units 4, 5 and 6), combined, shall not exceed the limits specified below:

PM	6.80 tons/yr
PM-10	6.80 tons/yr
Sulfur Dioxide	0.52 tons/yr
Nitrogen Oxides (as NO ₂)	59.81 tons/yr
Carbon Monoxide	72.47 tons/yr
Volatile Organic Compounds	4.97 tons/yr

Annual emissions shall be calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

28. **Visible Emission Limit** - Visible emissions from each of the 97 mmBTU/hr boiler (Units 4, 5 and 6) stack shall not exceed 5% opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 20% opacity as determined by EPA Method 9 (reference 40 CFR Part 60, Appendix A).
(9 VAC 5-50-80 and 9 VAC 5-50-260)
29. **Requirements by Reference** - Except where this permit is more restrictive than the applicable requirement, the NSPS equipment as described in Condition 1 shall be operated in compliance with the requirements of 40 CFR Part 60, Subpart Dc.
(9 VAC 5-50-400 and 9 VAC 5-50-410)
30. **Testing/Monitoring Ports** - The permitted facility shall be constructed so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. Test ports shall be provided on each of the 97 mmBTU/hr boiler (Units 4, 5 and 6) stacks.
(9 VAC 5-50-30 F)

OPERATING/EMISSIONS LIMITATIONS: BREWING AND PACKAGING

31. **Production** - The production of beer through packaging shall not exceed ten million barrels per year, calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
(9 VAC 5-80-1180)
32. **Throughput** - The annual throughput of barley malt shall not exceed 133,000 tons per year, calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
(9 VAC 5-80-1180)
33. **Emission Limits** - Particulate emissions (PM and PM-10) from the operation of the following equipment shall not exceed the limits specified below:

Equipment	Pollutant	lbs/hr	tons/year
Barley Malt Receiving System - Grain Receiving by Railcar and Headhouse and Internal Handling (Unit 10)	PM	1.3	1.1
	PM-10	0.3	0.3
Barley Malt Storage, Screening, and Milling System (Unit 10)	PM	0.3	0.6
	PM-10	0.2	0.5

Annual emissions shall be calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
(9 VAC 5-50-260)

34. **Emission Limits** - Volatile organic compound emissions from the operation of the equipment listed below shall not exceed the following limits:

Equipment	tons/month	tons/year
Brewing Process (Unit 20)	0.73	5.12
Fermentation (Unit 23)	4.18	4.48
Maturation (Unit 24)	0.24	2.85
Conditioning Process (Unit 25)	0.34	3.73
By-Products Handling System (Unit 26)	0.12	1.46
Packaging (Unit 27)	30.80	140.00
Conveyor Line Lubrication (Unit 28)	1.76	8.00
Product Marking (Unit 29)	2.42	11.00
Carton Assembly (Unit 30)	0.22	1.00
Bottle Label Application (Unit 31)	3.52	16.00
Defilling (Unit 32)	2.50	16.00
CO ₂ Recovery System (Unit 38)	0.61	7.16

Annual emissions shall be calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
(9 VAC 5-50-260)

35. **Emission Limits** - Particulate emissions (PM and PM-10) from the operation of the brewing process (Unit 20) shall not exceed 0.3 tons per month and 2.1 tons per year. Annual emissions shall be calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
(9 VAC 5-50-260)
36. **Visible Emission Limit** - Visible emissions from all fabric filters shall not exceed 5% opacity as determined by EPA Method 9 (reference 40 CFR Part 60, Appendix A).
(9 VAC 5-50-80 and 9 VAC 5-50-260)
37. **Requirements by Reference** - If the existing or permitted MillerCoors, LLC facility is modified by a relaxation in any enforceable limitation on the capacity or emissions of the source which would have made this facility subject to the requirements of 40 CFR § 52.21 on

May 2, 1997, then the requirements of 40 CFR § 52.21 shall apply to the facility as though construction had not yet commenced on the source or modification.
(9 VAC 5-80-1700)

OPERATING/EMISSIONS LIMITATIONS: WASTEWATER TREATMENT

38. **Fuel** - The approved fuel for the wastewater treatment biogas flare and biogas boilers is primary digester gas. The approved fuel for the flare pilot flame is propane. The flare and/or biogas boilers must be used for combustion of all digester gas. A change in the fuel may require a permit to modify and operate.
(9 VAC 5-80-1180)

39. **Throughput** - The annual throughput of lime shall not exceed 14,100 tons per year, calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

40. **Emission Limits** - Emissions from the operation of the lime storage and handling system (Unit 16) shall not exceed the limits specified below:

Particulate Matter (PM)	0.13 tons/yr
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PM-10	0.13 tons/yr
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Annual emissions shall be calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

41. **Emission Limits** - Volatile organic compound emissions from the operation of the wastewater collection/treatment and sludge handling systems shall not exceed 0.88 tons per month and 4.00 tons per year. Annual emissions shall be calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
(9 VAC 5-50-260)

42. **Visible Emission Limit** - Visible emissions from the bin vent filter shall not exceed 5% opacity as determined by EPA Method 9 (reference 40 CFR Part 60, Appendix A).
(9 VAC 5-50-80 and 9 VAC 5-50-260)

INITIAL COMPLIANCE DETERMINATION

43. **Stack Test** - Initial performance tests shall be conducted for nitrogen oxides from the 97 mmBTU/hr boiler (Unit 6) to determine compliance with the emission limits contained in Conditions 26 and 27. The tests shall be performed, and demonstrate compliance, within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted unit. Tests

shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30. The details of the tests are to be arranged with the Director, Valley Region. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Director, Valley Region, within 60 days after test completion and shall conform to the test report format enclosed with this permit.
(9 VAC 5-50-30 and 9 VAC 5-80-1200)

44. **Visible Emissions Evaluation** - Concurrently with the initial performance tests, visible emission evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall also be conducted on the 97 mmBTU/hr boiler (Unit 6). Each test shall consist of ten sets of 24 consecutive observations (at 15 second intervals) to yield a six-minute average. The details of the tests are to be arranged with the Director, Valley Region. The evaluation shall be performed within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted unit. One copy of the test results shall be submitted to the Director, Valley Region, within 60 days after test completion and shall conform to the test report format enclosed with this permit.
(9 VAC 5-50-30 and 9 VAC 5-80-1200)

CONTINUOUS COMPLIANCE DETERMINATION

45. **Visible Emissions Evaluation** - The permittee shall conduct visible emission inspections on each fabric filter stack and the bin vent filter in accordance with the following procedures and frequencies:
- a. At a minimum of once per week, the permittee shall determine the presence of visible emissions. If during the inspection, visible emissions are observed, either timely corrective actions shall be taken such that the stack resumes operation with no visible emissions, or a VEE shall be conducted in accordance with 40 CFR Part 60, Appendix A, Method 9 to verify that visible emissions are below the limit in Condition 36. If visible emissions exceed the limit in Condition 36, then timely corrective actions shall be taken such that stack resumes operation with visible emissions not exceeding the limit in Condition 36.
 - b. All visible emissions inspections shall be performed when the equipment is operating.
 - c. If visible emissions inspections conducted during twelve (12) consecutive weeks show no visible emissions, the permittee may reduce the monitoring frequency to once per month for that stack. Anytime the monthly visible emissions inspections show visible emissions, or when requested by DEQ, the monitoring frequency shall be increased to once per week for that stack.

(9 VAC 5-80-1200)

CONTINUOUS EMISSION MONITORING SYSTEM (CEMS)

46. **CEMS** - Continuous Emission Monitoring Systems shall be installed to measure and record the concentrations of nitrogen oxides emitted by the three 97 mmBTU/hr boilers (Units 4, 5 and 6). Nitrogen oxide monitor(s) shall be co-located with a CO₂ or O₂ diluent monitor. The monitor(s) shall meet the certification, operation, and maintenance requirements of 40 CFR § 60.13 and the quality assurance requirements of 40 CFR, Part 60, Appendix F, or a DEQ-approved equivalent method. A valid data point must be obtained every 15 minutes from each of the boilers being monitored in accordance with 40 CFR § 60.13 (e)(2).
(9 VAC 5-50-40)
47. **CEMS Performance Evaluations** – Performance evaluations of the continuous monitoring systems shall be conducted in accordance with 40 CFR Part 60, Appendix B, and shall take place during the performance tests under 9 VAC 5-50-30 or within 30 days thereafter. Two copies of the performance evaluations report shall be submitted to the Director, Valley Region, within 45 days of the evaluation. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation and calibration of the device.
(9 VAC 5-50-40)
48. **CEMS** – All continuous monitoring required by this permit shall meet minimum data availability of greater than or equal to 90% of the individual boiler operating hours of each of the three (3) 97 mmBTU/hr boilers (Units 4, 5 and 6) monitored sequentially, on a calendar quarter basis. The monitoring shall meet the certification, operation, and maintenance requirements of 40 CFR 60.13 and the quality assurance requirements of 40 CFR, Part 60, Appendix F, or a DEQ-approved equivalent method.
(9 VAC 5-50-40)
49. **CEMS** – The continuous monitoring data generated by all continuous emission monitoring systems shall be used to determine compliance with the emission limitations in Conditions 25, 26 and 27; compliance shall be demonstrated on a calendar quarter basis. The permittee shall install and maintain instrumentation necessary to determine compliance during on-site inspection by DEQ. This instrumentation should indicate and record the following for the three (3) 97 mmBTU/hr boilers (Units 4, 5 and 6), at minimum:
- a. The hourly heat input of each boiler in mmBTU/hr.
 - b. The total hourly heat input of all three boilers in mmBTU/hr.
 - c. The 30-day rolling average of NO_x emission rate in lbs/mmBTU and lb/hr, on a daily basis for each boiler.

The data shall be kept on file for the most recent five year period and made available to the DEQ upon request.

(9 VAC 5-50-40)

50. **CEMS Reports** - The permittee shall submit reports to the Director, Valley Region, within 30 days after the end of each calendar quarter for the three 97 mmBTU/hr boilers (Units 4, 5 and 6). Each quarterly report shall contain, at a minimum, the following:
- a. The source operating time, in hours.
 - b. For each boiler operating day, the information required under 40 CFR § 60.49b (g)(1), (g)(2), and (g)(3).
 - c. The quality assurance information required under 40 CFR § 60.49b (g)(10).
 - d. The date(s) and time(s) of all outages of the NO_x continuous monitoring system, with reasons for the outages, and corrective actions taken.
 - e. The calculated hourly NO_x emission rates, in lbs/hr.

One copy of the quarterly report shall be sent to EPA at the following address:

Associate Director
Office of Air Enforcement (3AP20)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

(9 VAC 5-80-1180 and 9 VAC 5-50-50)

RECORDS

51. **On Site Records** - The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Director, Valley Region. These records shall include, but are not limited to:
- a. The four week period and annual throughput of natural gas (in million cubic feet) and propane (in 1000 gallons) for the three 18 mmBTU/hr boilers (Units 1, 2 and 3). The annual throughput shall be calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
 - b. The daily, four week period, and annual throughput of natural gas (in million cubic feet) and propane (in 1000 gallons) for the three 97 mmBTU/hr boilers (Units 4, 5 and 6). The annual throughput shall be calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.

- c. The daily, four week period, and annual throughput of digester gas (in million cubic feet) for the biogas boiler rated at 8.37 mmBTU/hr (Unit 35). The annual throughput shall be calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
- d. Annual throughput of barley malt (in tons), calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
- e. Annual throughput of lime (in tons), calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
- f. Annual total of beer brewed (in 1000 barrels), calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
- g. Annual throughput of waste beer through waste beer tanks (by volume), calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
- h. Annual total of CO₂ consumed (by weight) during conditioning activities, calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
- i. The four week period and annual particulate emissions (in tons) from the grain handling system and the lime storage and handling system. Annual emissions shall be calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
- j. Annual total of cans filled (by volume), calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
- k. Annual total of bottles filled (by volume), calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
- l. Annual total of kegs filled (by volume), calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
- m. Annual total of beer packaged (in 1000 barrels), calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
- n. The annual total of bottle glass recovered from bottle defill crushing operations (by weight), calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
- o. The annual total of can aluminum recovered from can defill densifying operations (by weight), calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
- p. The annual total of conveyor line lubricant used (by volume), calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.

- q. The annual total of product marking ink used (by volume), calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
- r. The annual total of carton assembly glue used (by weight), calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
- s. The annual total of label application glue used (by weight), calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
- t. The annual total of CO₂ recovery system outage (by time), calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
- u. The DEQ-approved VOC emission factors and the equations used to demonstrate compliance with Condition 34.
- v. Four (4) week period and annual VOC emissions (in tons) from brewing process (Unit 20), fermentation (Unit 23), maturation (Unit 24), conditioning process (Unit 25), by-products handling system (Unit 26), packaging (Unit 27), the conveyor line lubrication (Unit 28), product marking (Unit 29), carton assembly (Unit 30), bottle label application (Unit 30), defilling (Unit 32) and CO₂ recovery system (Unit 38). Annual emission shall be calculated every four (4) week period as the sum of thirteen (13) consecutive four (4) week periods.
- w. Certified MSDS sheets showing VOC content (by weight) for each conveyor line lubricant, product marking ink, carton assembly glue, and label application glue.
- x. Records demonstrating compliance with Condition 21.
- y. Continuous monitoring data required in Condition 49.
- z. Results of all stack tests, visible emission evaluations, and performance evaluations.
- aa. Fuel supplier certifications of the sulfur content of the fuels burned in the two (2) 97 mmBTU/hr. boilers (Units 5 and 6).

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.

(9 VAC 5-50-50)

NOTIFICATIONS

52. Initial Notifications - The permittee shall furnish written notification to the Valley Regional Office of:

- a. The actual date on which construction of the 97 Million Btu/hr boiler (Unit 6) and the modification of the lime handling and storage system equipment (Unit 16) commenced within 30 days after such date.
- b. The anticipated start-up date of the 97 Million Btu/hr boiler (Unit 6) and the lime-handling equipment (Unit 16) postmarked not more than 60 days nor less than 30 days prior to such date.
- c. The actual start-up date of the 97 Million Btu/hr boiler (Unit 6) within 10 days after such date.
- d. The actual start-up date of the lime handling and storage system equipment within 15 days after such date.
- e. The anticipated date of the visible emission evaluation and performance tests of the 97 Million Btu/hr boiler (Unit 6), postmarked at least 30 days prior to such dates.
- f. The demonstration the continuous monitoring system's performance for the 97 Million Btu/hr boiler (Unit 6), postmarked at least 30 days prior to the test.

Copies of the written notifications referenced in items a, b, c, e, and f (for Unit 6) are to be sent to the EPA at the address listed in Condition 50.

(9 VAC 5-50-50 and 9 VAC 5-80-1180)

GENERAL CONDITIONS

53. Permit Invalidity - The portions of this permit authorizing construction and operation of the 97 mmBTU/hr boiler (Unit 6) shall become invalid on February 16, 2010, unless an extension is granted by the DEQ, if a program of construction is discontinued for a period of eighteen (18) months or more, or is not completed within a reasonable time, except for a DEQ-approved period between phases of a phased construction.

(9 VAC 5-80-1210)

54. Permit Invalidity - The portions of this permit to modify the lime handling and storage system equipment shall become invalid, unless an extension is granted by the DEQ, if:

- a. A program of continuous modification is not commenced within the latest of the following:

- i. 18 months from the date of this permit;
 - ii. Nine months from the date that the last permit or other authorization was issued from any other governmental entity;
 - iii. Nine months from the date of the last resolution of any litigation concerning any such permits or authorization; or
- b. A program of modification is discontinued for a period of 18 months or more, or is not completed within a reasonable time, except for a DEQ approved period between phases of a phased construction project.

(9 VAC 5-80-1210)

55. Permit Suspension/Revocation - This permit may be suspended or revoked if the permittee:

- a. Knowingly makes material misstatements in the permit application or any amendments to it;
- b. Fails to comply with the conditions of this permit;
- c. Fails to comply with any emission standards applicable to a permitted emissions unit,
- d. Causes emissions from the stationary source which result in violations of, or interfere with the attainment and maintenance of, any ambient air quality standard; or
- e. Fails to operate in conformance with any applicable control strategy, including any emission standards or emission limitations, in the State Implementation Plan in effect at the time an application for this permit is submitted.

(9 VAC 5-80-1210 F)

56. Right of Entry - The permittee shall allow authorized local, state, and federal representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises on which the facility is located or in which any records are required to be kept under the terms and conditions of this permit;
- b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;
- c. To inspect at reasonable times any facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations; and
- d. To sample or test at reasonable times.

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency.
(9 VAC 5-170-130 and 9 VAC 5-80-1180)

57. Maintenance/Operating Procedures - The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions, with respect to air pollution control equipment, monitoring devices, and process equipment which affect such emissions:

- a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.
- b. Maintain an inventory of spare parts.
- c. Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum.
- d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures, prior to their first operation of such equipment. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

Records of maintenance and training shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request.
(9 VAC 5-50-20 E and 9 VAC 5-80-1180 D)

58. Records of Malfunctions - The permittee shall maintain records of the occurrence and duration of any bypass, malfunction, shutdown or failure of the facility or its associated air pollution control equipment that results in excess emissions for more than one hour. Records shall include the date, time, duration, description (emission unit, pollutant affected, cause), corrective action, preventive measures taken and name of person generating the record.
(9VAC 5-20-180 J and 9 VAC 5-80-1180 D)

59. Notification for Facility or Control Equipment Malfunction - The permittee shall furnish notification to the Valley Regional Office of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour, by facsimile transmission, telephone or telegraph. Such notification shall be made as soon as practicable but no later than four daytime business hours after the malfunction is discovered. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within two weeks of discovery of the malfunction. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the permittee shall notify the Valley Regional Office.
(9 VAC 5-20-180 C and 9 VAC 5-80-1180)

60. **Violation of Ambient Air Quality Standard** - The permittee shall, upon request of the DEQ, reduce the level of operation or shut down a facility, as necessary to avoid violating any primary ambient air quality standard and shall not return to normal operation until such time as the ambient air quality standard will not be violated.
(9 VAC 5-20-180 I and 9 VAC 5-80-1180)
61. **Change of Ownership** - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify the Valley Regional Office of the change of ownership within 30 days of the transfer.
(9 VAC 5-80-1240)
62. **Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies.
(9 VAC 5-80-1180)